

2021 PIERCE ASCENDANT TDA



Revised 12/06/21

This document and additional reference documents regarding this breed of apparatus are available at:

<http://www.montgomerycountymd.gov/mcfrs-psta/driver/DriverTrainingPierceAscendant.html>

Key New Features



- Aerial is 107' (true 100' horizontal reach)
- Aerial has collision avoidance programming
 - Reduces chance of aerial striking truck
 - NO programming to avoid light tower
- Hyperfast option for turntable rotation when aerial is fully retracted
- 750 lbs tip (egress) load
- One button to activate aerial master
- Use Level Assist to set jacks
- Digital load chart on the pedestal

Key New Features



- 10KW Generator
- Forward looking sensor for accident avoidance (HAAS)
 - Traffic Notification System – not yet enabled as of 11/2021
- 1500 GPM waterway with 1250 GPM Nozzle
- Light Tower
- No flying standpipe
- No boat light
- Command Zone III screens in cab and pedestal
- Stabilizer (outrigger) cameras

Key New Features



- Ladder is stronger, yet more flexible
 - Aerial has slightly more bow than previous trucks when a load is applied to the tip
- Pedestal controls are electronic
 - The controls ramp an electrical signal up/down as you use them
 - Aerial may continue to move slightly after you move the control to the neutral position as the current dissipates

PRACTICE PRACTICE PRACTICE

Dimensions & Weight



- Overall height: 11' 2.5"
- Overall width: 96" (8' 0")
 - ~10' mirror to mirror
- Overall length: 59' 8"
- Actual weight – **date?**
 - Weigh stats?
 - GVW is 72,540 lbs



Safety Systems



- Anti-lock braking on all axles
- Automatic traction control
 - Acts as automatic differential lock
 - "Off-road traction" switch allows some override
- SRS cab system
- Frontal impact protection systems
- Side roll protection systems

Powertrain Systems



- Motor: Cummins X12 500 hp
- Transmission: Allison 5th Gen, 4500 EVS 6-speed
- Maximum speed is 60mph
- Motor oil and transmission fluid checks via access panel in crew area of cab

Transmission level is also checked via the transmission keypad



Cab Tilt



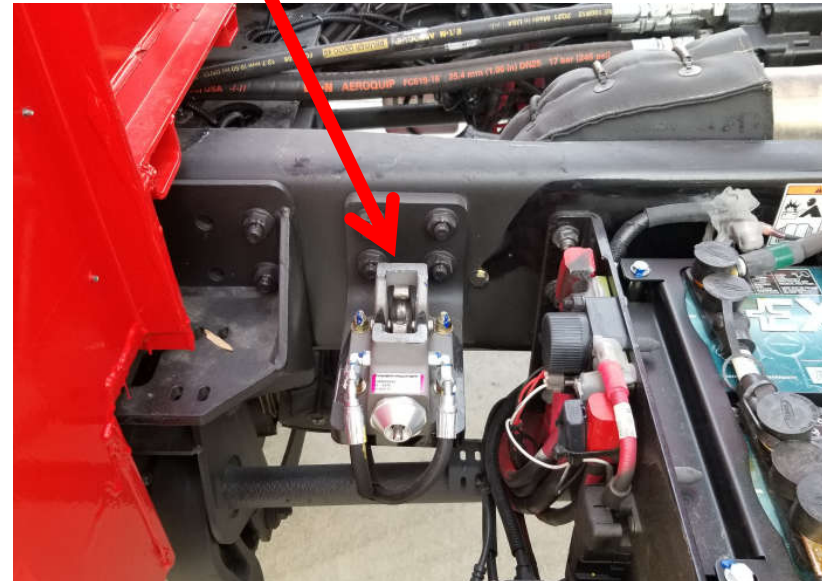
Control is found in the second Compartment on the officer's Side of the cab

There is no manual cab tilt



- Battery and ignition switch must be on to lift cab.
- Cab locks are not visible when the cab is down. There is no sound or visible queues to verify engagement

Hold 5 sec



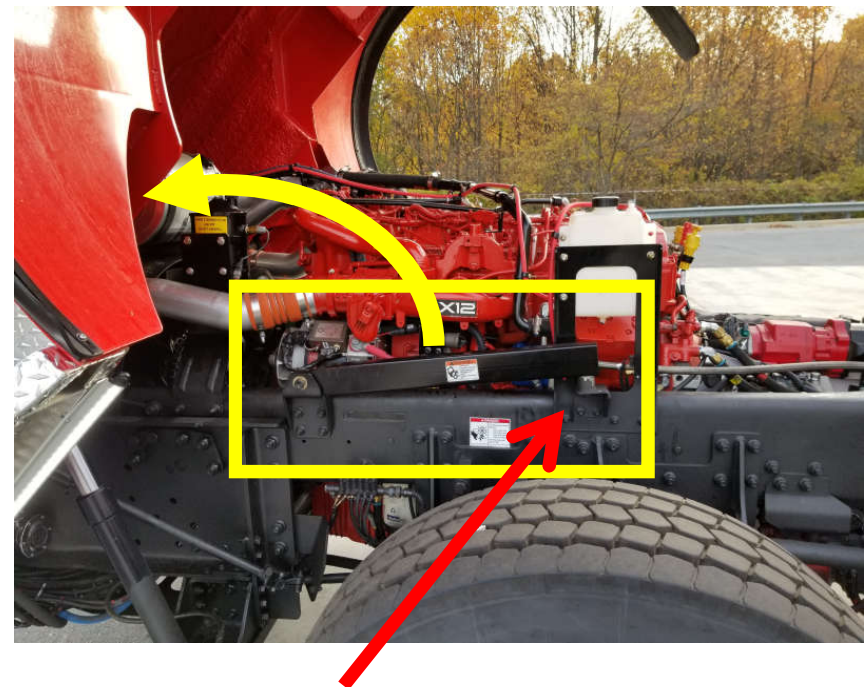
Always:

- Secure loose items in the cab
- Verify clearances
- Ensure overhead garage doors stay down BEFORE tilting the cab

Cab Tilt – Safety Arm



- Locking safety arm located on driver's side engine compartment
- Stowed on top of the frame rail beside the motor
 - Metal may be hot – use gloves to handle
 - No cables or pull latches to operate
 - Held down by a rubber cup during storage



Some effort may be required to pull the end of the arm out of the rubber storage cup

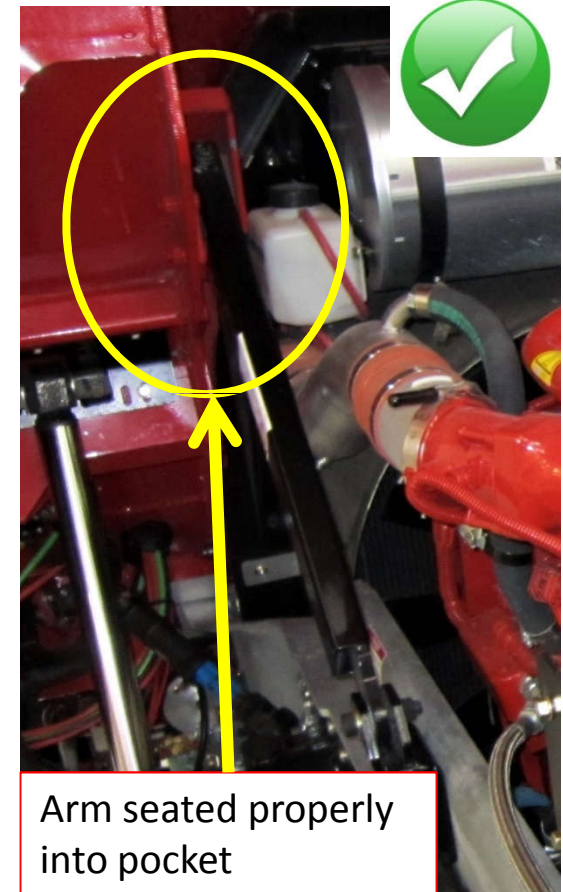
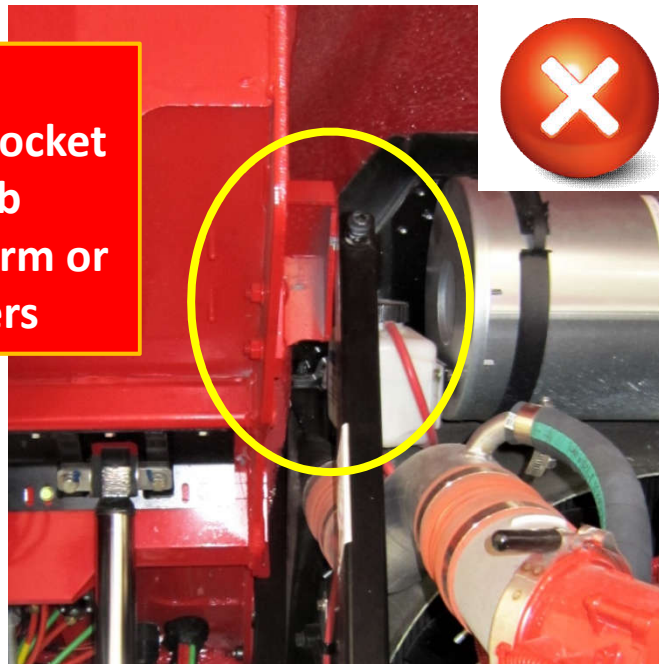
Cab Tilt – Safety Arm



- Drops into a pocket ahead of the wheel well
 - Be sure to verify the arm lands in the pocket – hinge has a loose tolerance and may let the arm fall outside

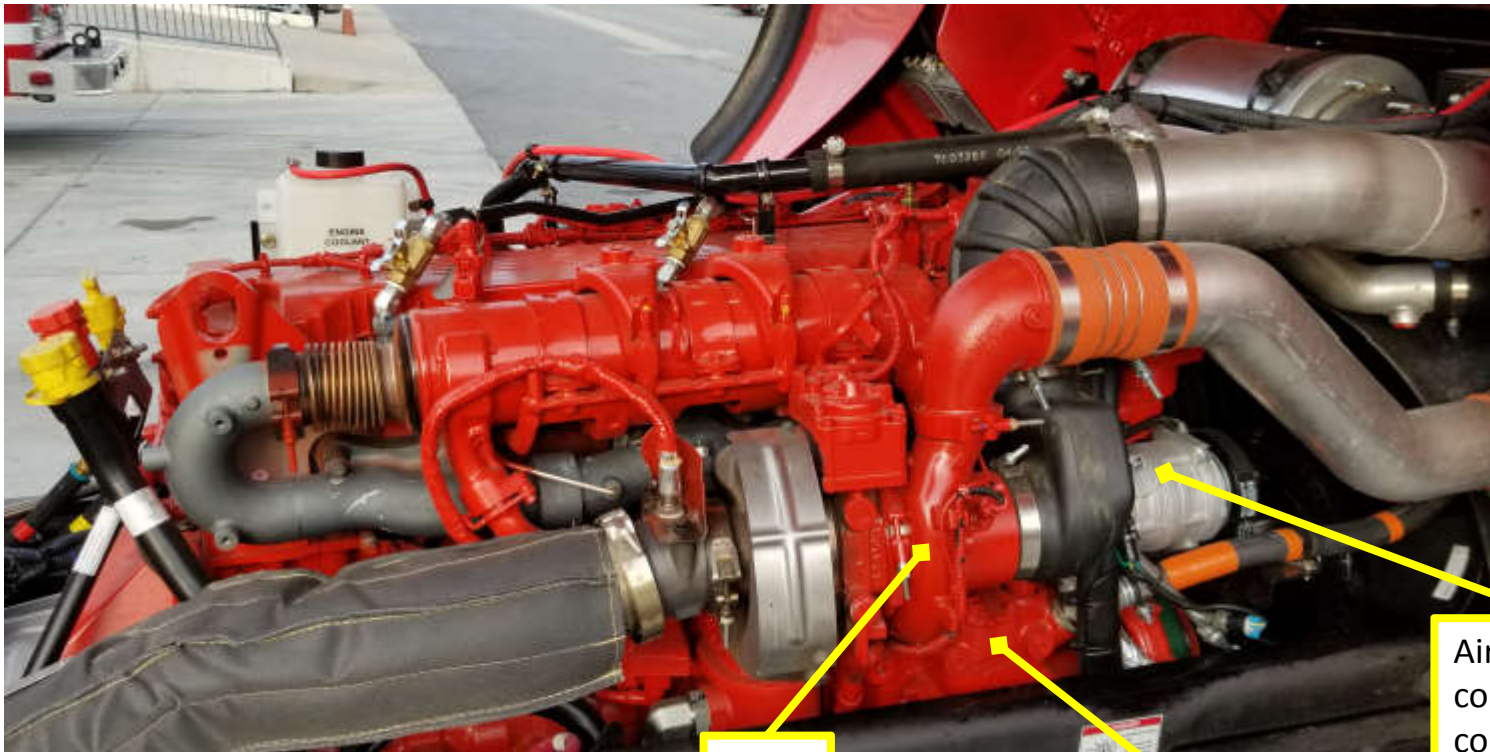
DANGER

Arm is not in the pocket
Not holding the cab
May damage the arm or
cab if the cab lowers



Arm seated properly
into pocket

Motor Compartment

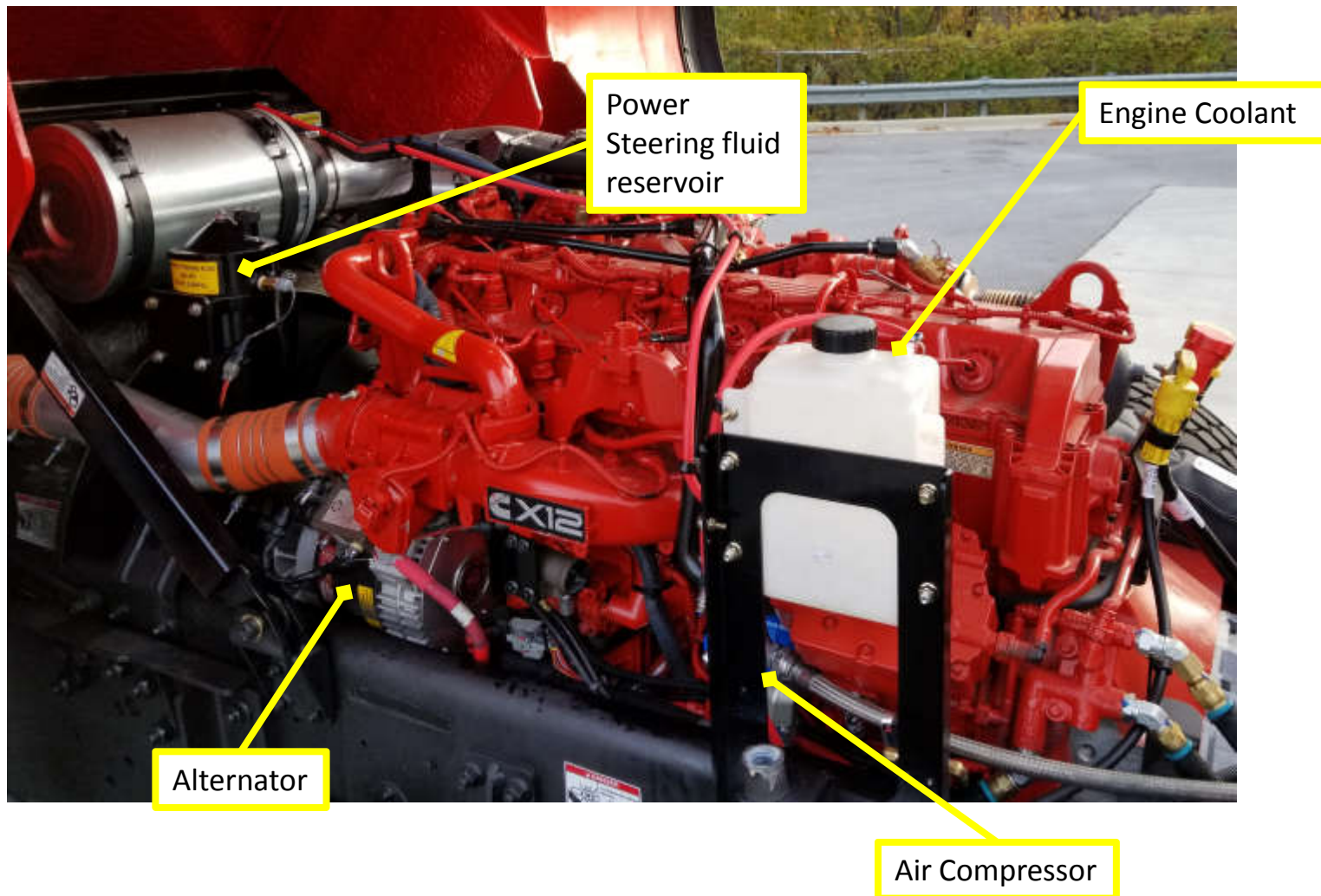


Turbo

Water Pump

Air
conditioning
compressor

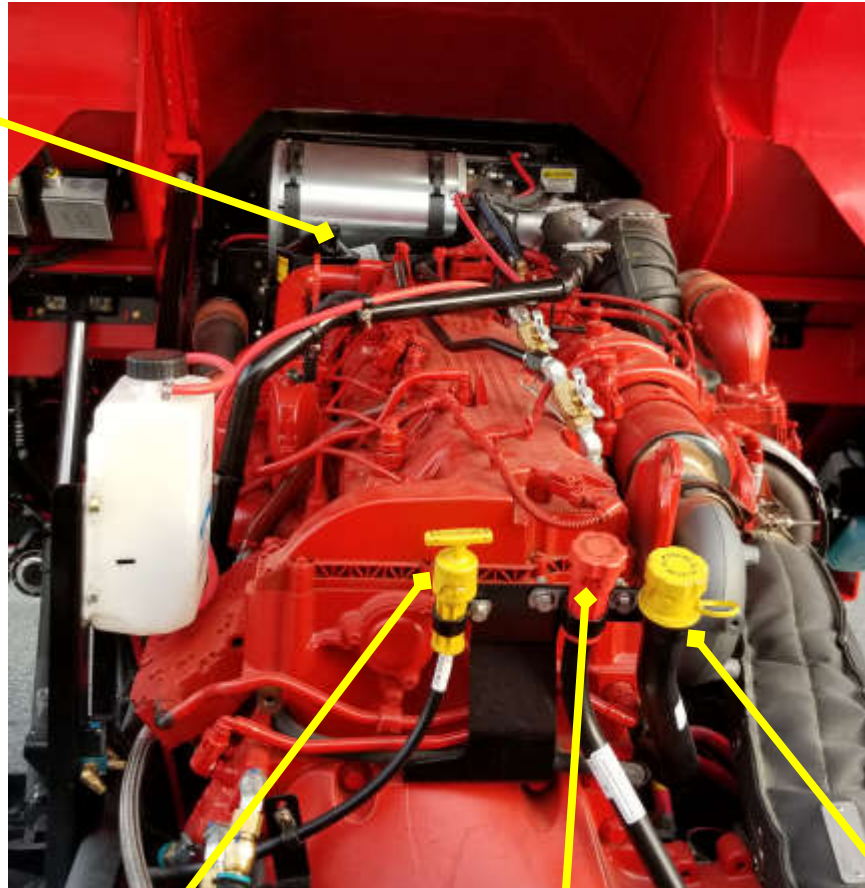
Motor Compartment



Motor Compartment



Power
Steering fluid

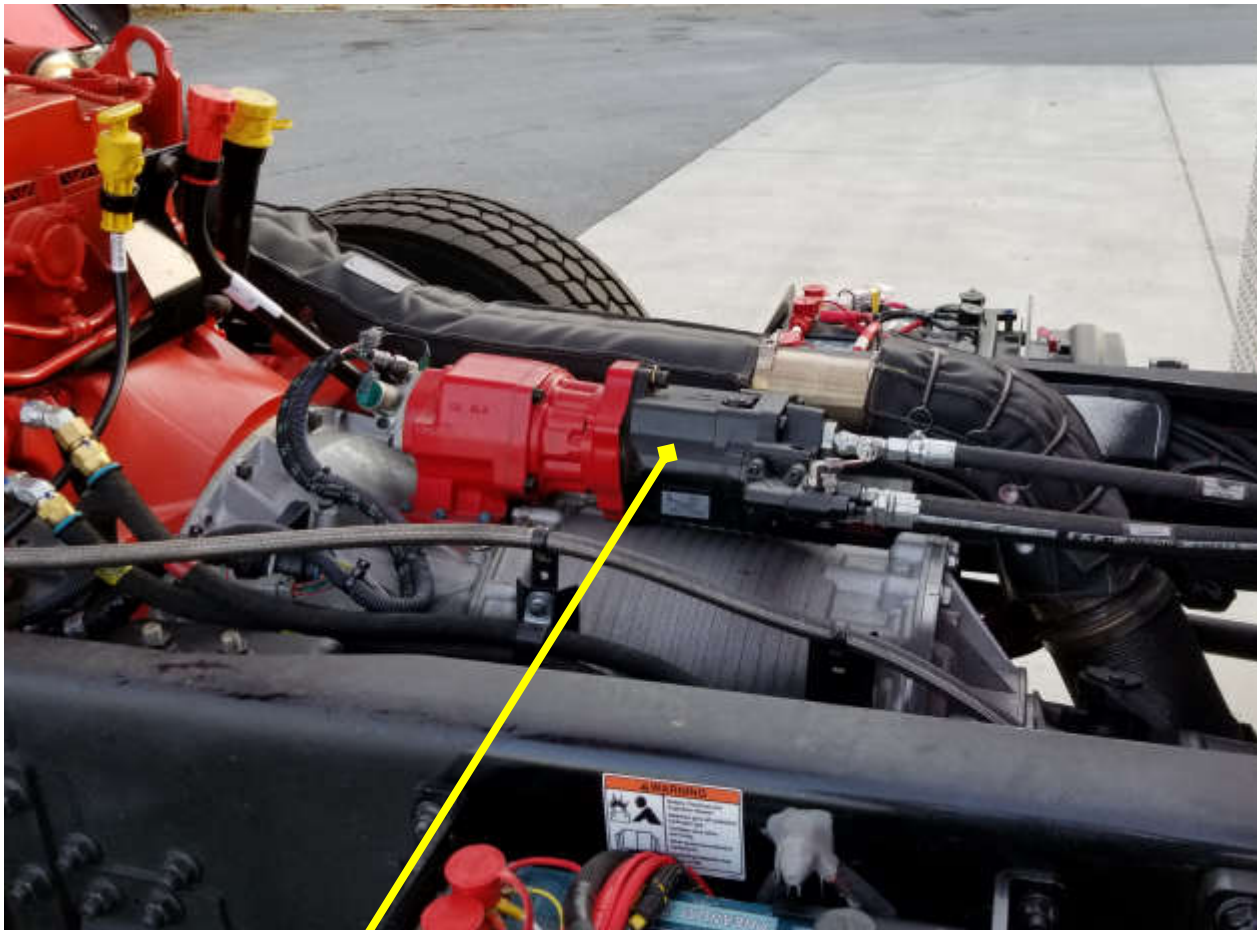


Motor oil dipstick

Transmission dipstick and fill

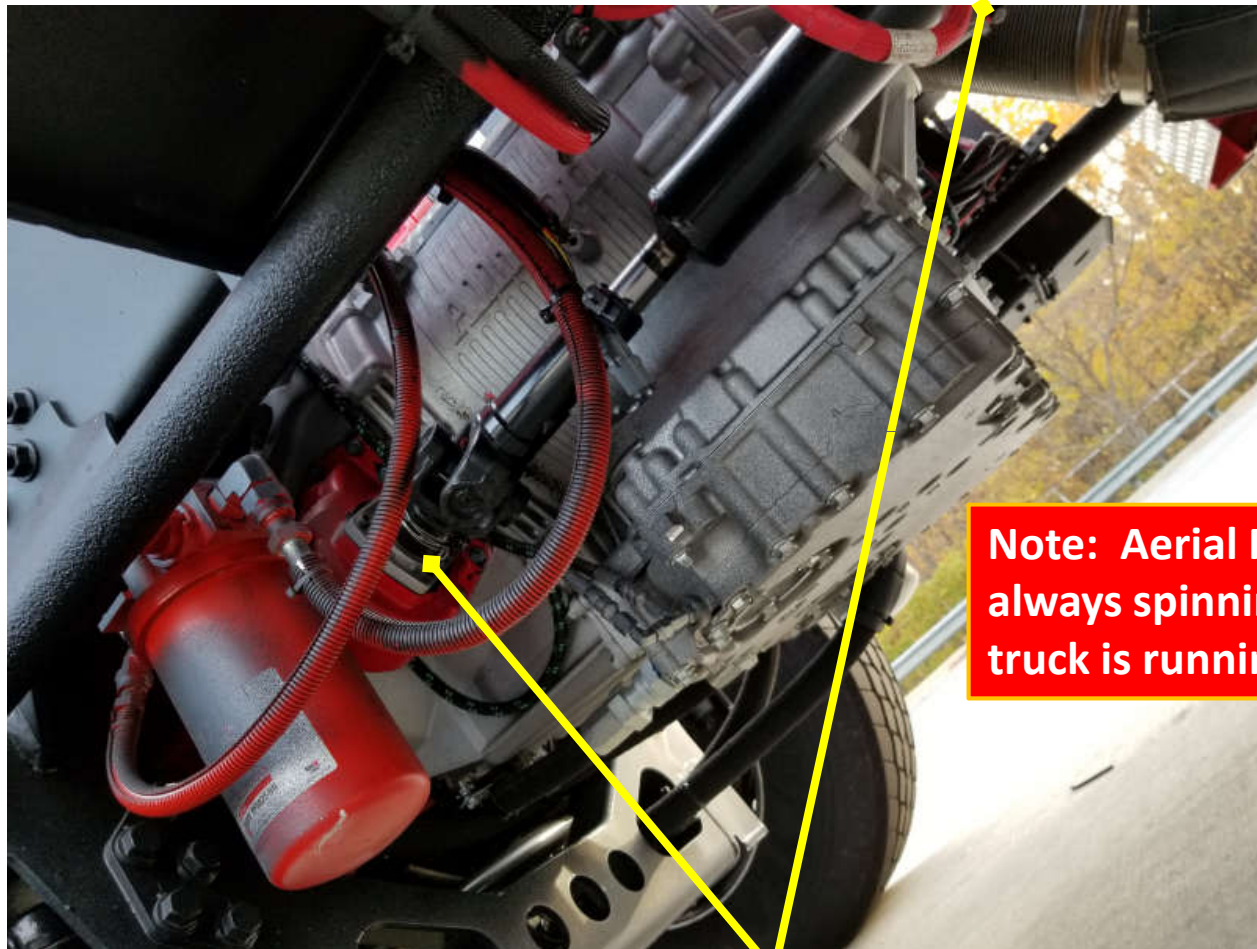
Motor oil fill

Motor Compartment



Generator PTO

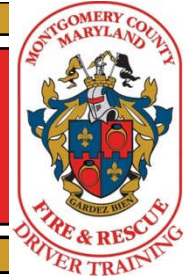
Motor Compartment



**Note: Aerial PTO is
always spinning while
truck is running**

Aerial PTO

Data Plate



- Located on the driver's door and on the motor housing next to the driver's seat
- Always verify fluid type before adding

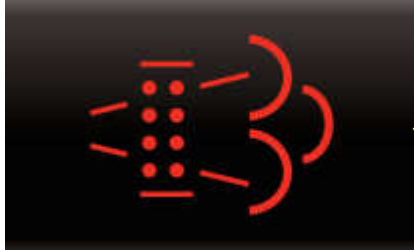
| | | | | | | | | | | | | | |
|---|------------------------|------------------------|-------|---|-------|---------------------|--|-----------|--|----------|--|-------------------|--|
| <p>Manufactured by: Pierce Manufacturing, Inc. Custom Designed and Manufactured Exclusively For -</p> <p>MONTGOMERY COUNTY</p> | | | | <p>OSHKOSH Oshkosh Corporation VEHICLE EMISSION CONTROL INFORMATION Vehicle Family: L0SH2VOCV000 Sub-Category: Vocational Vehicles above 33,000 lbs GVWR Emissions component: LRRR THIS VEHICLE COMPLIES WITH U.S. EPA REGULATIONS FOR 2020 MODEL YEAR HEAVY-DUTY VEHICLES</p> | | | | | | | | | |
| Mo./Yr of Mfgr | | Aug - 2021 | | Job No. | | 35862-02 | | WO No. | | 27181491 | | | |
| GVWR | | 32,904 KG (72,540 LB) | | Tire-Limited Max Speed | | 68 mph | | Chassis | | Enforcer | | | |
| GAWR | | TIRES | | RIMS | | COLD TIRE INFLATION | | | | | | | |
| Front | 8,500 KG (18,740 LB) | 385/65R22.5 (J) | | 22.50x12.25 | | 827 kPa (120 PSI) | | SINGLE | | | | | |
| Rear | 14,062 KG (31,000 LB) | 315/80R22.5 (L) | | 22.50x9.00 | | 861 kPa (125 PSI) | | DUAL | | | | | |
| Tiller | 10,342 KG (22,800 LB) | 425/65R22.5 (L) | | 22.50x12.25 | | 827 kPa (120 PSI) | | SINGLE | | | | | |
| THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE. | | | | | | | | | | | | | |
| VIN | | | | 4P1BCAGF5MA023250 | | | | TYPE | | | | Emergency Vehicle | |
| CUSTOM HIGH GRADE PAINT FINISH | | | | | | | | | | | | | |
| Red | | Pierce No. 307 | | Sikkens Autocoat BTLV Basecoat | | | | FLNA30253 | | | | | |
| None | | Pierce No. 0 | | NA | | | | NA | | | | | |
| FLUID CAPACITIES | | | | | | | | | | | | | |
| Verify All Fluid Capacities and Perform All Maintenance Items outlined in the Chassis Operation Manual At The Recommended Time Intervals | | | | | | | | | | | | | |
| Device | | Fluid Capacity | | | | Fluid Type | | | | | | | |
| Engine | X12 | 42.6 | Liter | 45.0 | Quart | 15W40 CK-4 | | | | | | | |
| Trans. | 4500 EVS | 36.9 | Liter | 39.0 | Quart | TES-295 Synthetic | | | | | | | |
| Coolant | | 42.6 | Liter | 45.0 | Quart | OAT ELC | | | | | | | |
| Power Steering | | 12.3 | Liter | 13.0 | Quart | TES 389 ATF | | | | | | | |
| Front Axle and Tiller Axle | | | | | | 80W90 GEAR LUBE | | | | | | | |
| Rear Axle (#2 or Single) | | 21.8 | Liter | 23.0 | Quart | 80W90 GEAR LUBE | | | | | | | |
| Rear Axle (#3) | | 0.0 | Liter | 0.0 | Quart | NA | | | | | | | |
| Cab Tilt | | 3.8 | Liter | 4.0 | Quart | TES 389 ATF | | | | | | | |
| Gen | Harrison - 10 KW | 28.4 | Liter | 30.0 | Quart | MULTI-VIS #46 | | | | | | | |
| (Refer to Owners Manual for Temperature Ranges) | | | | | | | | | | | | | |
| Transfer Case | | 0.0 | Liter | 0.0 | Quart | NA | | | | | | | |
| Equipment Rack - Per Reservoir | | 0.0 | Liter | 0.0 | Quart | NA | | | | | | | |
| Breathing Air Compressor | | 0.0 | Liter | 0.0 | Quart | NA | | | | | | | |
| CAFS Compressor | | 0.0 | Liter | 0.0 | Quart | NA | | | | | | | |
| Water Pump Transmission | | 0.0 | Liter | 0.0 | Quart | NA | | | | | | | |
| Water Pump Primer | | 0.0 | Liter | 0.0 | Quart | NA | | | | | | | |
| | | Refrigerant Charge | | Oil Charge | | Fluid Type | | | | | | | |
| Tractor A/C Compressor | | 4 lbs 6 oz | | 12.6 oz | | PAG 48 | | | | | | | |
| Tiller Cab A/C Compressor | | 2 lbs 1 oz | | 12.0 oz | | POE | | | | | | | |

Power Steering Tiller



Located between cab and turntable.

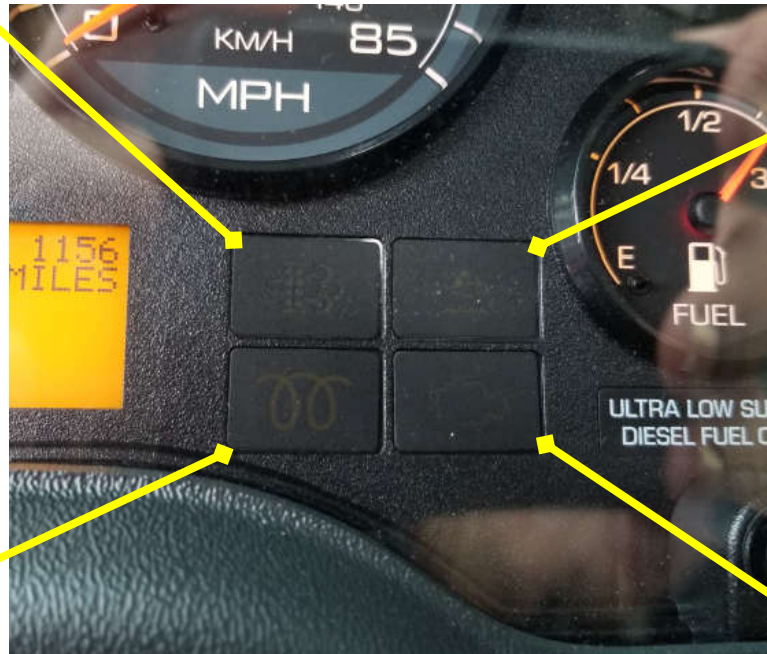
After-Engine Exhaust Treatment



Diesel Particulate Filter is Full



High Temperature Exhaust Warning



Glow Plugs

Check Engine Warning

You should wait for the glow plug symbol to switch off before starting the engine. However, if they come on after this, it means one of the glow plugs has a problem.

After-Engine Exhaust Treatment

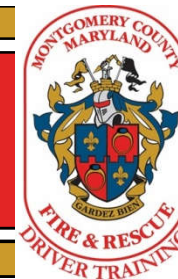









- Vehicle is equipped with diesel exhaust fluid and a diesel particulate filter

See [Cummins After-Engine Treatment Brochure](#) for more info.



Regeneration Indicators



| | |
|---|--|
| | The Diesel Particulate Filter (DPF) light will illuminate when a regeneration is necessary. There are progressive stages of need for regeneration indicated by this light: |
|  | <p>1. On solid (low to medium levels of particulate build up). The vehicle requires regeneration but should be able to complete its mission before a regeneration is performed.</p> <ul style="list-style-type: none"> — Ensure the Regen Inhibit Switch is not activated. — Initiate a DPF regeneration by switching to a more challenging duty cycle (such as highway driving for at least 20 minutes or pumping) — OR perform a parked regeneration. |
|  | <p>2. Flashing (medium to high levels of particulate build up). The vehicle requires a regeneration as soon as possible).</p> <ul style="list-style-type: none"> — Perform a regeneration by switching to a more challenging duty cycle or a parked regeneration. |
|   | <p>3. Flashing with amber Check Engine light (high level of particulate build up). A DPF regeneration is required immediately.</p> <ul style="list-style-type: none"> — An automatic regeneration will not initiate. The operator must perform a parked regeneration. |
|    | <p>4. If a parked regeneration is not performed the red Stop Engine lamp will illuminate.</p> <ul style="list-style-type: none"> — As soon as it is safe to do so, the vehicle should be stopped and remain shut down until serviced by an authorized dealer. |

Active Regeneration



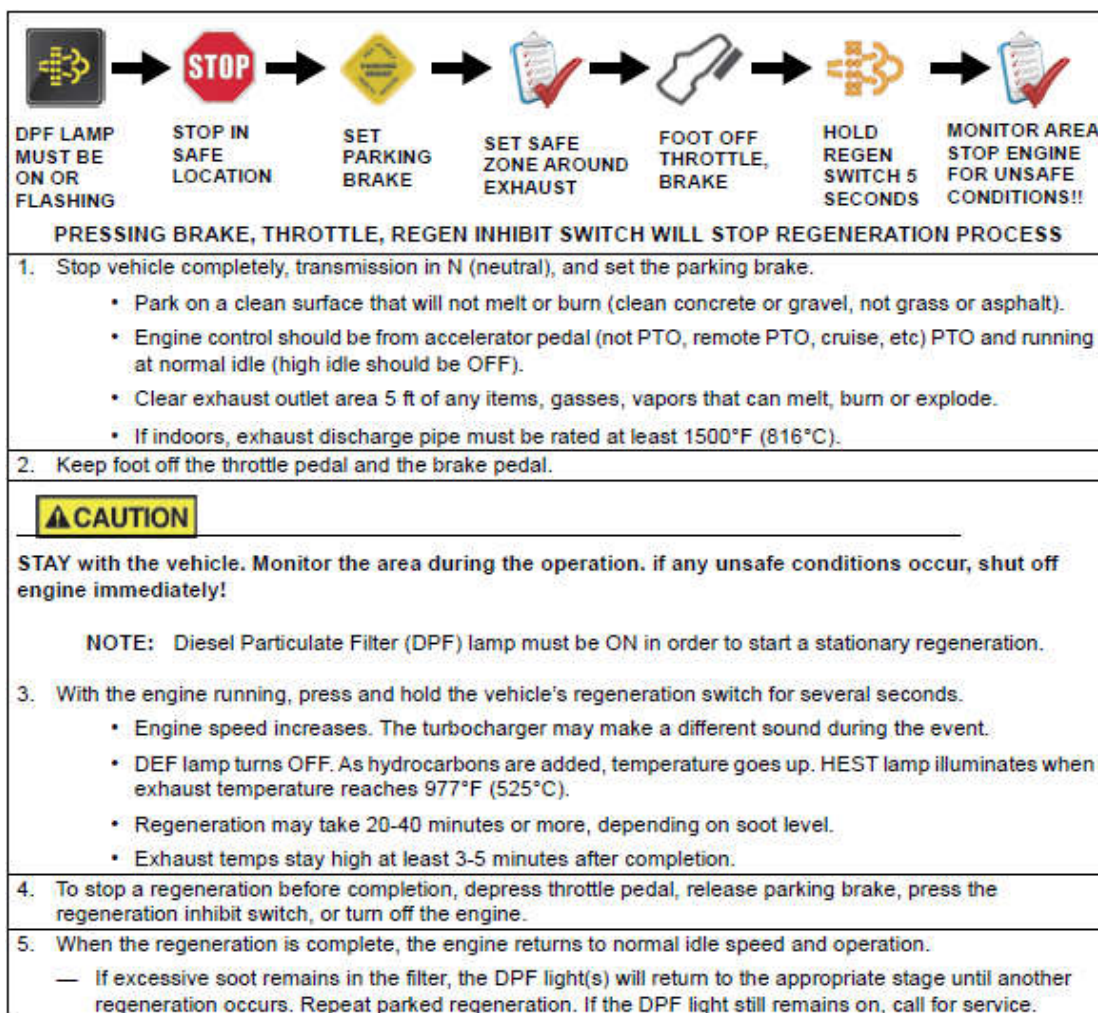
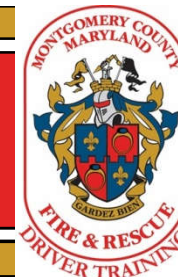
Prevents system from entering or continuing in active regeneration mode; used when regen may engage in an undesirable location



Used to manually initiate a parked regeneration; DPF lamp must be illuminated to engage

- Due to the type of travel typical of fire apparatus “active regeneration” is most common
- Active regeneration occurs:
 - a. When driving creates correct conditions for regen
 - Requires sufficient exhaust flow and temperatures
 - Speedometer >5mph
 - NO engine speed variations will occur when driving
 - b. **This can occur while operating on scene if rpms > 700**

Parked Regeneration



Do not perform regen inside a building or while attached to an exhaust removal system!

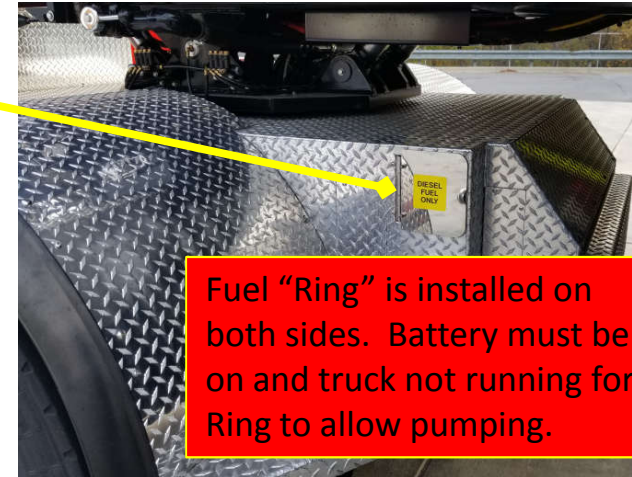
A minimum of 5 feet of clearance is required to the exhaust outlet.

For additional information, refer to the Pierce Ascendant Operator's Manual.

Fuel and DEF



- Diesel Fuel
 - Fills on both sides of the apparatus under backside of turntable
 - 50 gallon tank
- Diesel Exhaust Fluid (DEF)
 - Fluid level displayed on dashboard gauge panel and in Command Zone display
 - 4.5 gallon tank
 - Fill on driver's side in front of tractor rear wheels
 - Light blue cap



Do not fill DEF tank when truck is running. It will empty small heater tank back into main tank and over flow it.

Exhaust System



- Exhaust outlet is 6" diffuser
- PlymoVent boots will accept up to 6 ¼" exhaust outlets
 - The fit is tight!
- Check your mirror to ensure the hose disengages from the exhaust when exiting the station
- Until the rubber molds to the larger tailpipe the boot may need to be manually disengaged

PLYMOVENT®



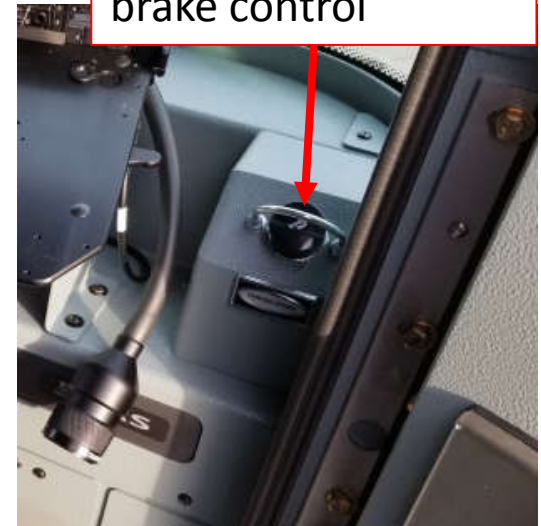
**Slow and steady
departures from the bay
are necessary.**

Suspension & Brake Systems

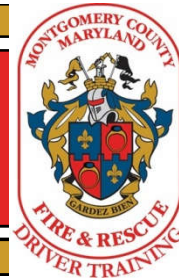


- 18,740lbs front axle
 - TAK4
- 31,000lbs rear axle
- 22,800lbs tiller axle
 - TAK4
- Parking brake
 - Locks up rear tractor and tiller wheels
 - 2nd actuator located on officer's side dashboard adjacent to A-post for emergencies
- Anti-lock disc air brakes front and tiller axle
- Anti-lock drum air brakes rear axle
- 25.9cfm air compressor
- 12v auxiliary air compressor behind driver seat
 - Powered by shoreline to maintain brake system while parked
- Air dryer on wet tank
- Stainless steel air storage tanks
- Air tank drain actuators – driver side beside wheel chock mount

Officer side parking brake control



Suspension & Brake Systems



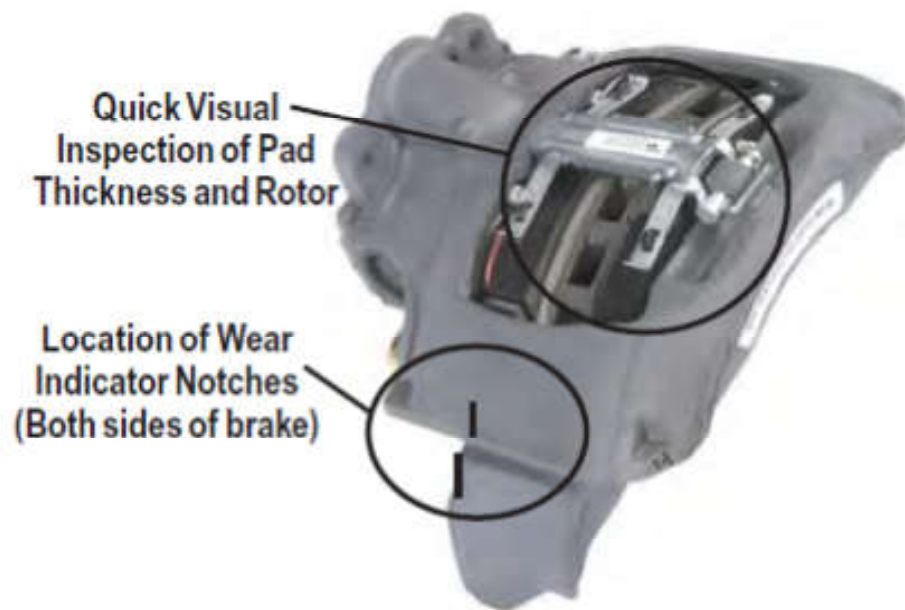
- Glad Hands
 - Emergency Air / Towing



Brakes – Front Axle

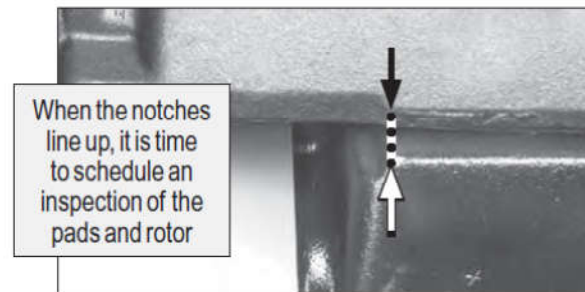
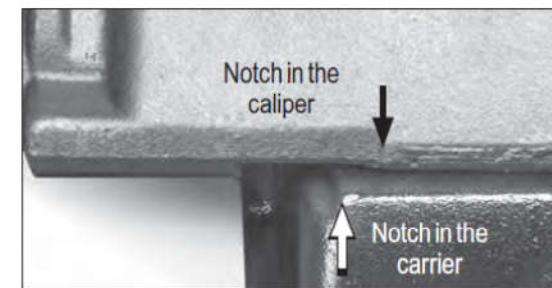


Bendix Disc



Where both the carrier and caliper have an indicator notch.

Compare the relative position of two notches cast into the carrier and caliper. When the two notches align, it is time to schedule a full wheel-removed inspection of the pads and rotor.



When the notches line up, it is time to schedule an inspection of the pads and rotor

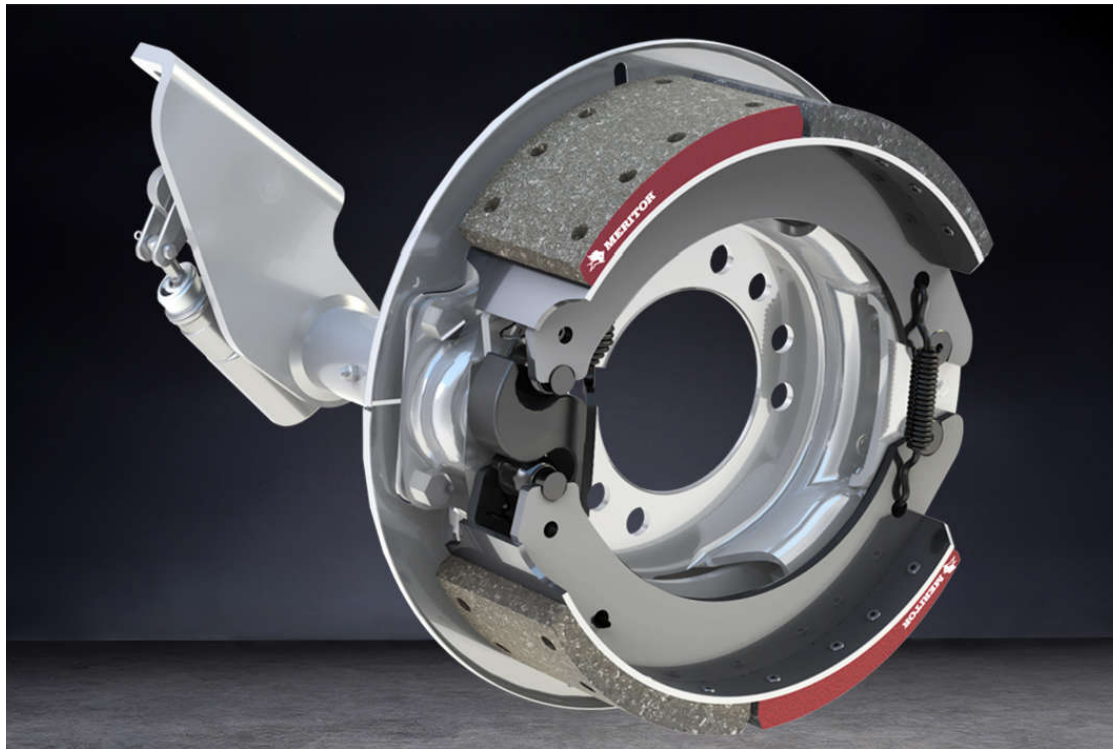
Pads must be replaced at 11mm (approximately 7/16")

For additional information go to the [Bendix Service Bulletin](#)

Brakes – Rear Axle



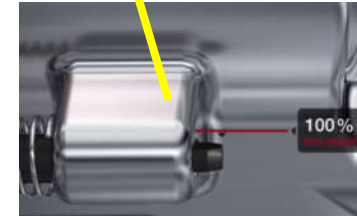
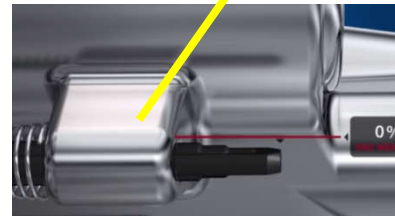
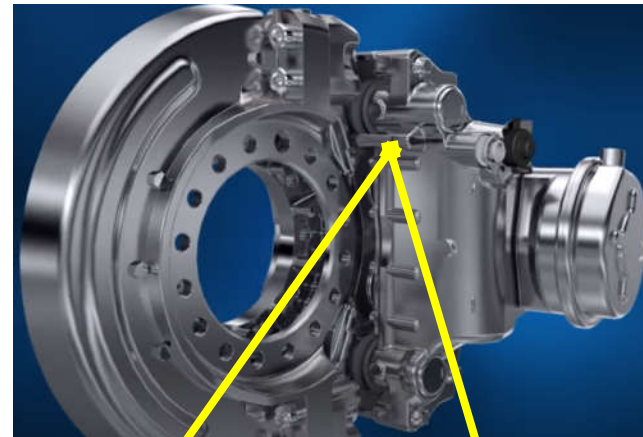
- Meritor Cam Drum Brakes



Brakes - Tiller Axle



Meritor EX225 Disc



Brakes - Tiller Axle



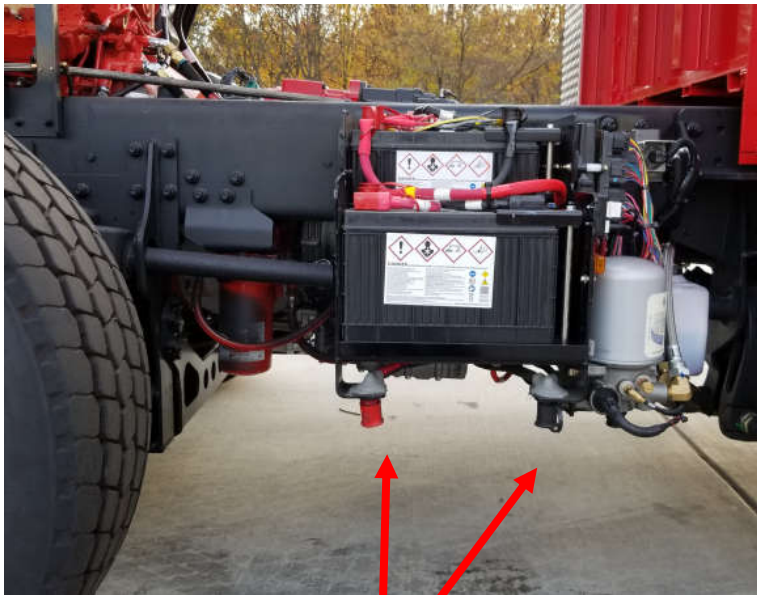
Meritor DiscPlus EX225 Disc



Pads must be replaced at 3mm (approximately 1/8")

For additional information go to the [Meritor Maintenance Manual](#)

Jumper Studs & Glad Hands



Jumper studs accessible
below driver's side cab door
when cab is nested



Glad hands located below
the front bumper to assist
with towing

Compressed Air

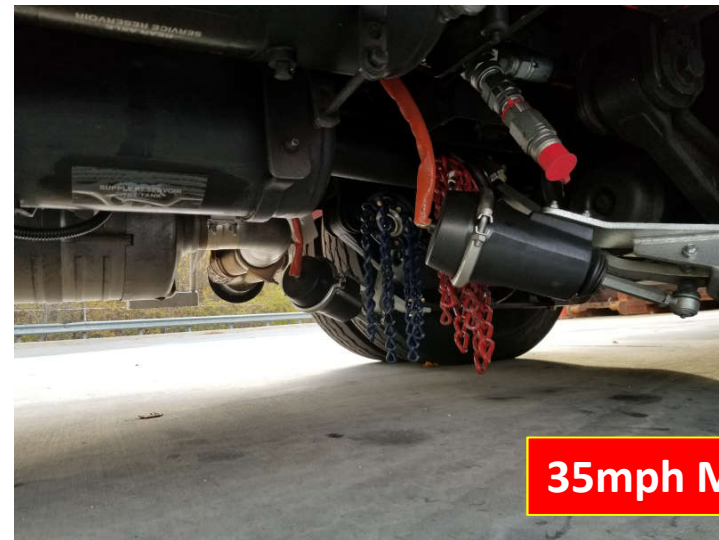


Compressed Air controls are located in the first cab compartments on both sides of the truck

Snow Chains



- OnSpot automatic snow chains on rear axle
- Switch located on dashboard to the left of the steering wheel
- The On-spot chains have a 5 second delay before they activate. This is done to prevent accidental activation.



35mph MAX

Shoreline



**This is not an auto-eject plug.
Must be unplugged manually before
moving the truck.**

- 20 amp, 120v NEMA 5-20 plug with green indicator light
- Supplies
 - Battery conditioner
 - DEF tank warmer
 - Battery charger tender

The following outlets are supported by shoreline or generator using an automatic transfer switch (ATS):

- Driver's side EMS compartment
- LS6 (D6)
- LS2

Shoreline



The remaining outlets are generator only, and ALL outlets are labeled with either “ATS” or “Generator only”.

It is CRITICAL that stations do not move chargers from generator only to the ATS outlets because the shoreline outlets are right at the maximum amperage that the station outlets (circuit breakers) will allow.

It is also CRITICAL that stations do not add any other devices to the ATS outlets. We ran a lot of calculations of the circuitry when we selected chargers.

If personnel need to charge more batteries than the ATS chargers will support, they need to use the station-based chargers which will be provided.

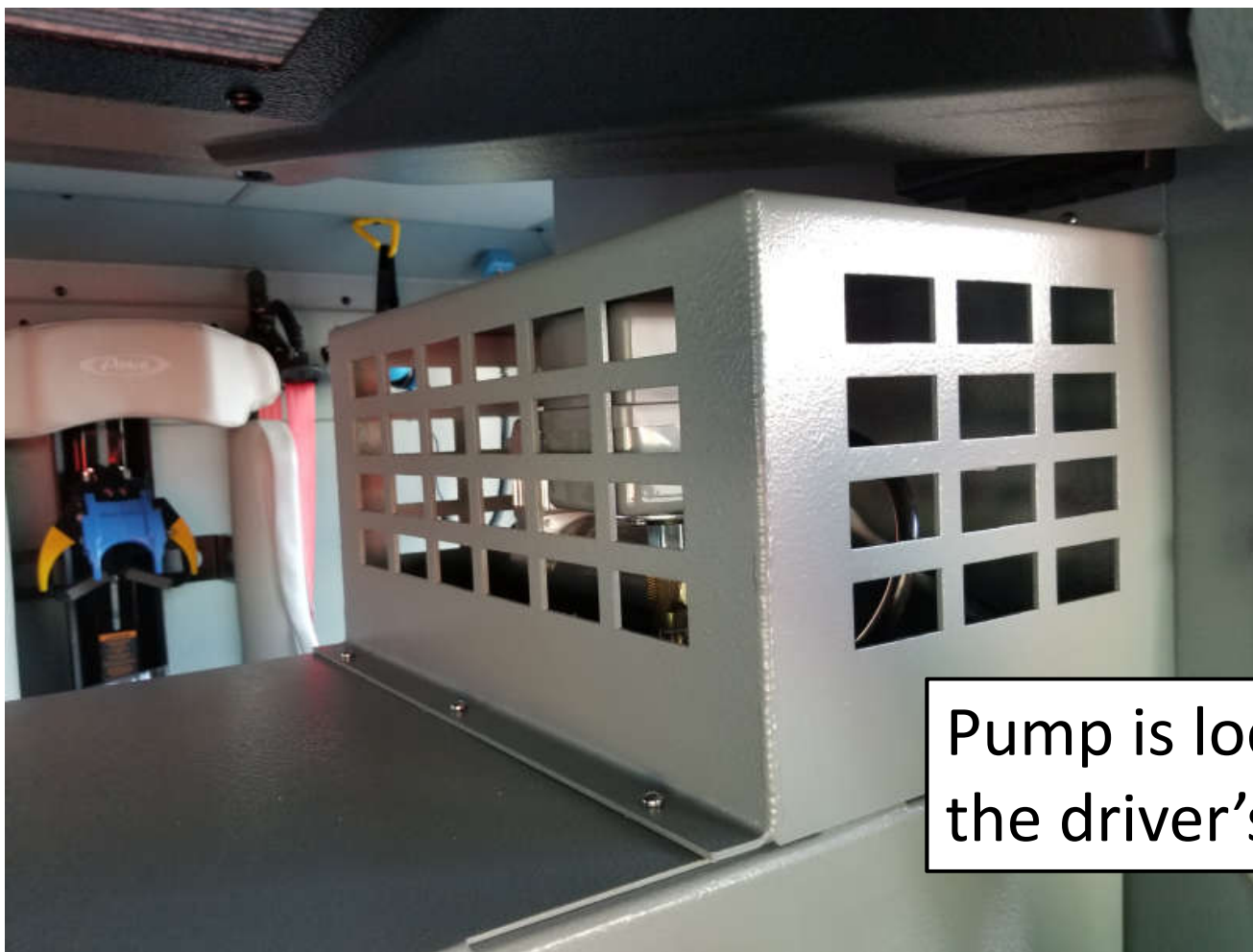
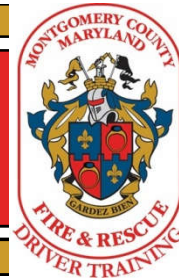
Shoreline



If the service air tanks need to be filled or maintained, the inlet below the driver's door should be used.

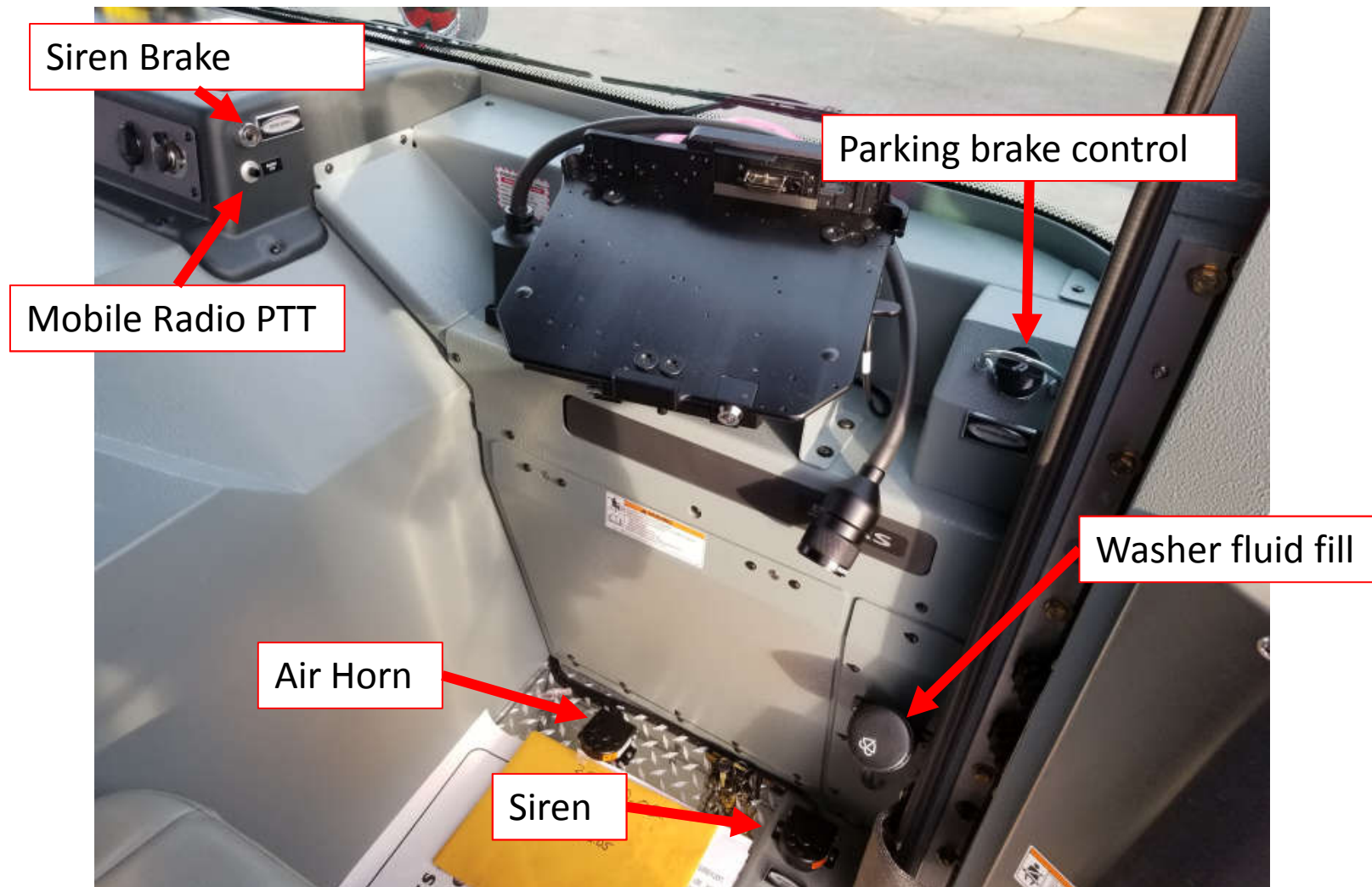
**This is not an auto-eject fitting.
Must be unplugged manually before
moving the truck.**

Jockey Pump



Pump is located behind the driver's seat

Officer Seat Area



Officer Seat Area



Scene Lights

Apparatus Speed



Driver's Seat

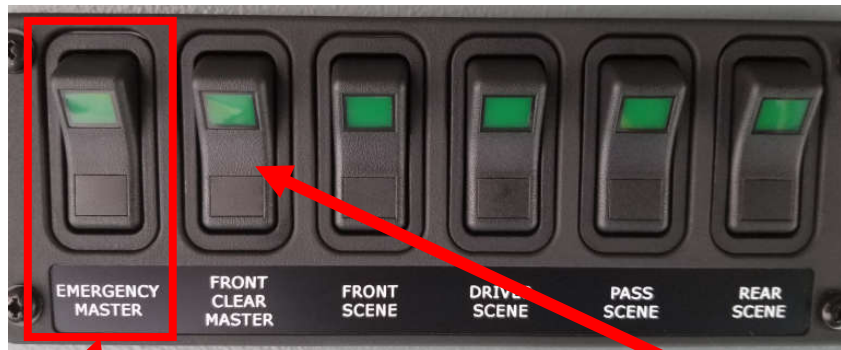


Forward/aft adjustment

Air controlled height adjustment



Warning Light Controls



Scene light switch panel

E-master switch on the overhead panel and on the dashboard perform same function



Allows operator to control clear (white) warning lights manually. Resets to default setting when E-master is cycled.

Useful when clear lights are blinding during fog or snow or other units parked in front of you.

Aerial & Generator Controls



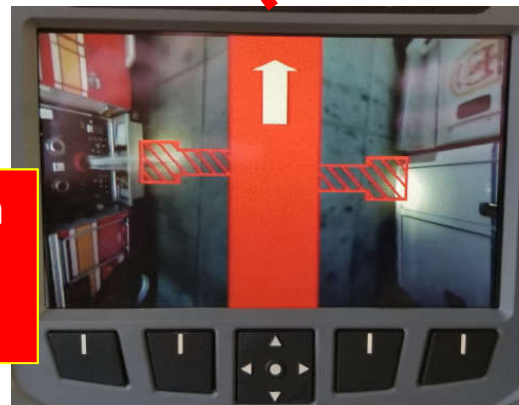
Aerial Master

Single switch to set front wheel locks and activate aerial PTO for aerial operations

Generator PTO

Switch activates 10KW generator

The Stabilizer camera can also be activated from the Command Zone III

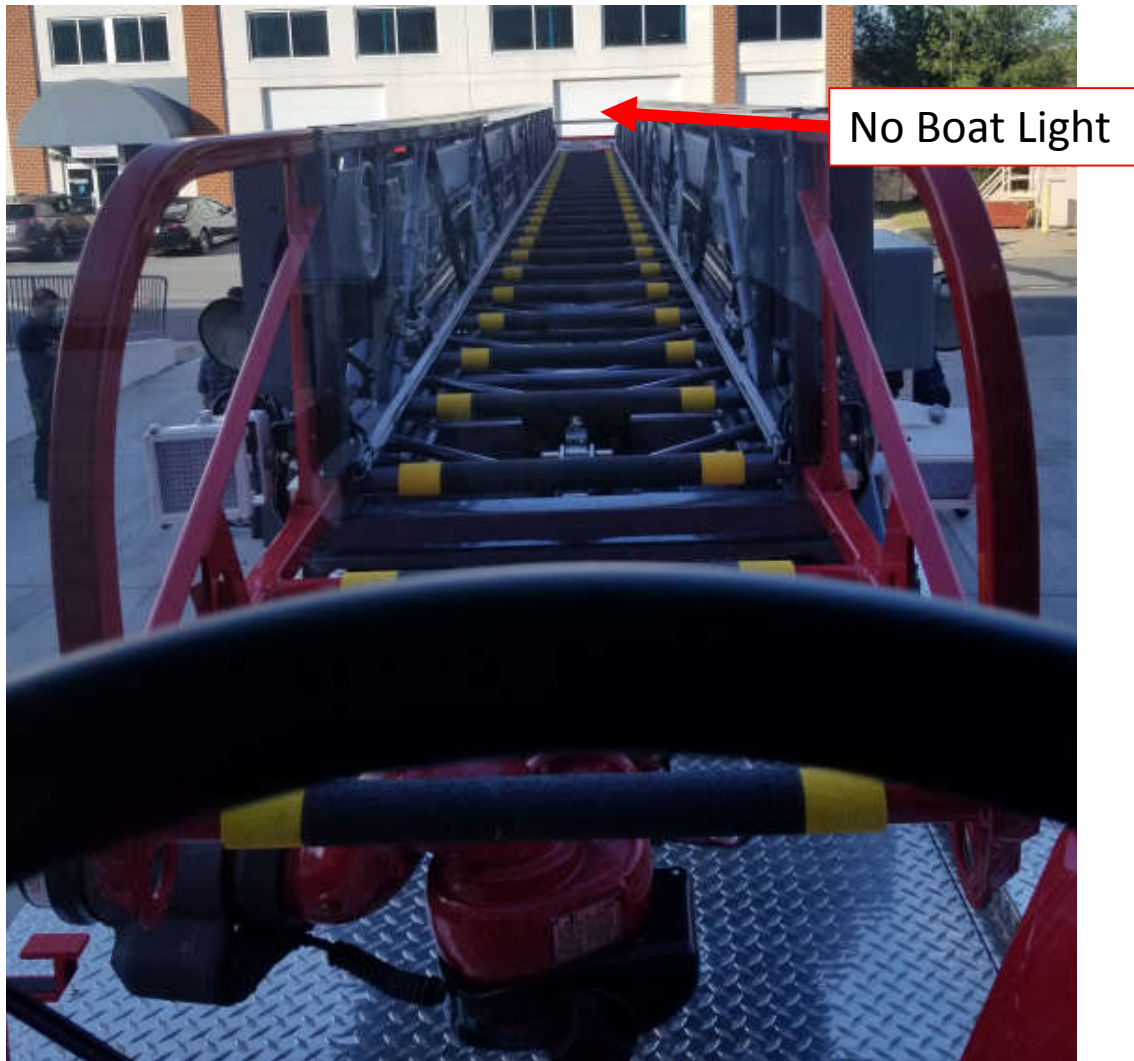


Tiller Seat Controls



Momentary "Engine Start" switch. Must be held in up position for driver to start the engine.

Tiller View



Tiller HVAC Controls



Fan Speed Control

High, Off, Low

A/C Temperature Control

Heater Control

Press a button once to “wake” and then press buttons to use “Cooler” “On/Off” and “Warmer” settings

Note: heater can take up to 2 minutes to start

Tiller Heater Fuel

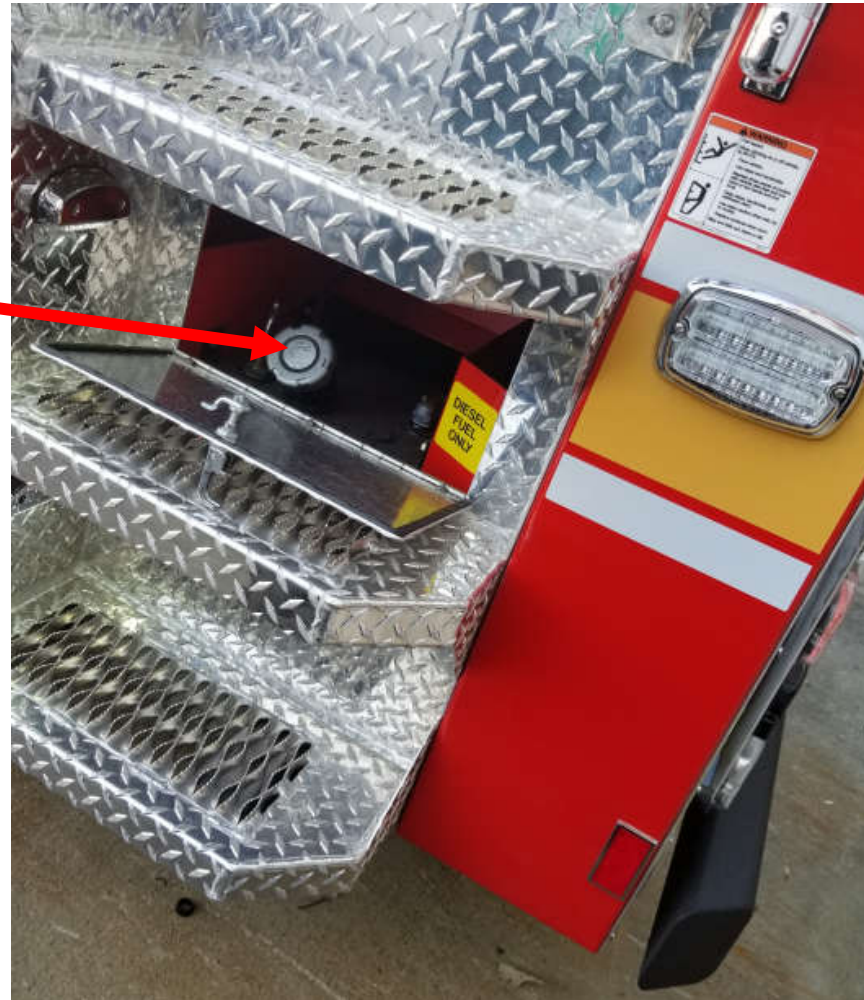


Diesel tank fill for tiller heater is located in the driver side tiller steps

No "ring" system installed

It is roughly a 3 gallon tank

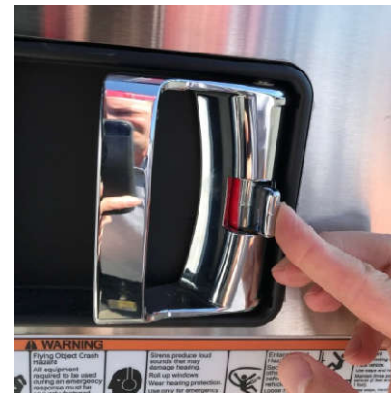
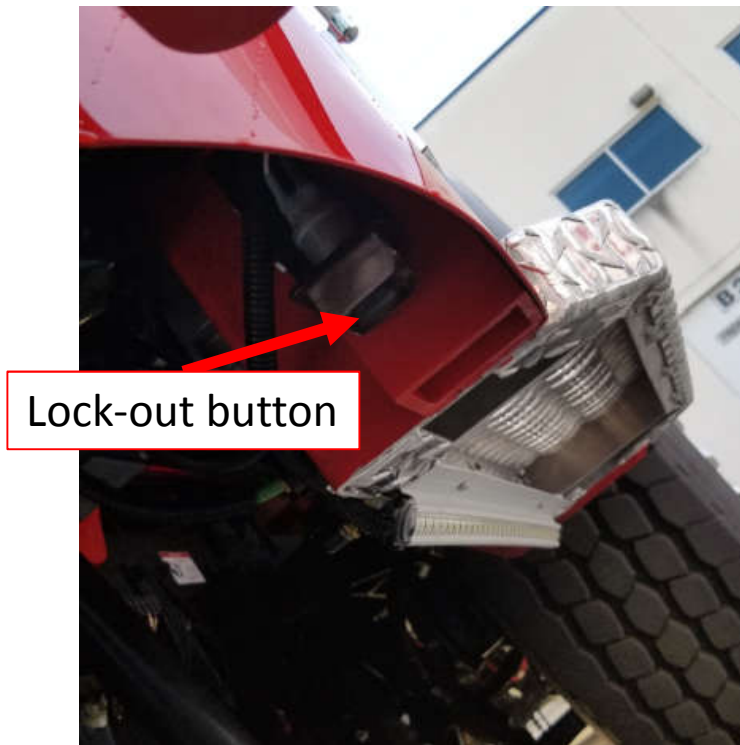
The heater will continue to run with the battery switch in the front cab off. It will run until you turn it off or it runs out of fuel.



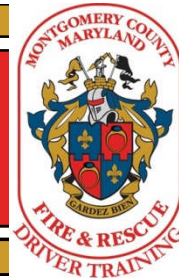
Cab Door Locks



- Electric door locks on cab entry doors
 - Not connected to compartments
- Lock-out switch located below the cab by the driver's door entry step
- **Driver and officer doors control all four cab doors**
- T3 and T4 doors only control the individual doors



Starting & Stopping The Motor



- Battery switch, ignition switch, and start button are all grouped near the A-post on the driver's side

Allow gauges to complete their sweep before attempting to start the motor. Failure to wait can result in false sensor alarms.

Do not leave ignition switch in the run/on position when the truck is not running. This can result in false sensor alarms.

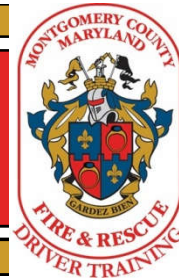
In addition to the battery, ignition switch must be "on" for most electrical functions to work (like cab tilt)

Ignition switch
-up to run/on
-down to shut off

Battery switch



Starting & Stopping The Motor



1. Turn Battery Switch To "ON"
2. Turn Ignition Switch up to run/on
3. Wait for gauge sweep
4. Tiller must be holding "Engine Start" button in up position
5. Press the Start engine button Engage for no more than 15 seconds.



Mechanic's Start



This is against best practices for normal operations

Best practices:

- Tiller Driver should press their start switch
- The "Do Not Move" lights and alarms will be active if tiller isn't seated and belted
- The "Tiller Not Seated" light will be lit on the officer's dash
- ALWAYS get verbal confirmation from the tiller that they are ready to move



It is possible to start the engine using the mechanic's start button by holding it in while pressing the Start switch

Heating and A/C



Fan Control. The controller and system will include automatic temperature control. Simply push the fan control knob to activate the automatic temperature control.

Temperature Control. Operators set the temperature by rotating the dial. Pressing the center of the temperature control knob will activate the air conditioning (A/C) in manual mode.

Air Flow Control. Pressing the air flow control knob will activate max defrost that will distribute airflow to the full forward position, set the fan speeds to 100-percent and engage the A/C.

High Idle and Aerial Master



Aerial Master sets all brakes on all wheels and transfers power to the Aerial PTO and in turn the Aerial Controls

High idle switch and indicator
Increases idle to 1,300rpm

NOTE: use whenever idling for >5 minutes





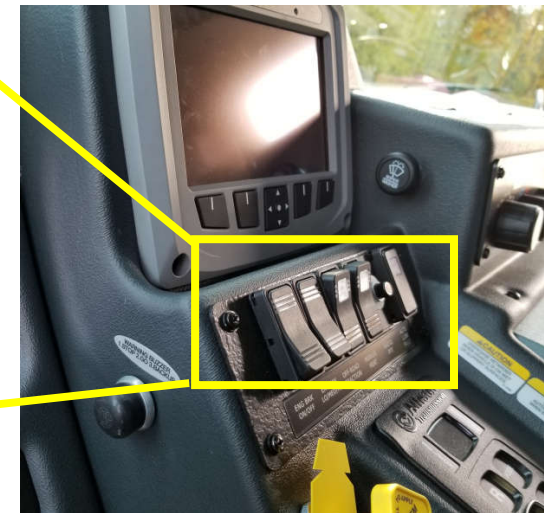
Jake Brake, ATC, Mirror Heat



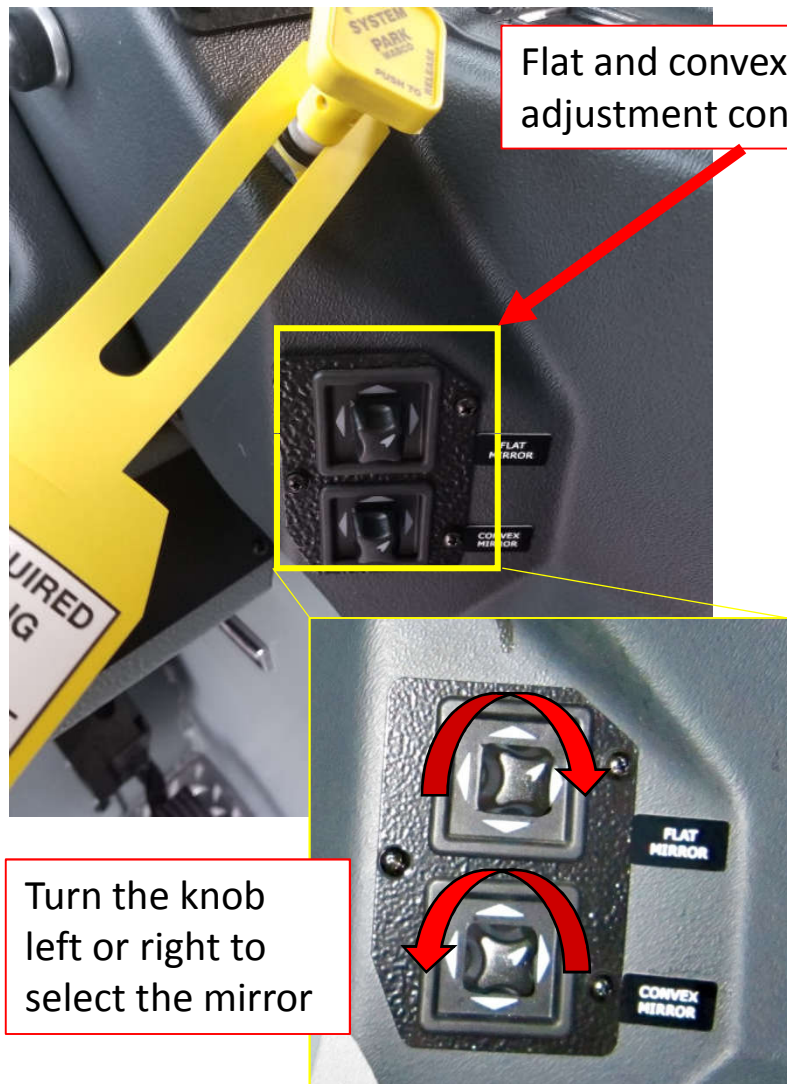
PTT For Driver Radio Communications

Momentarily impairs ATC to allow more wheel spin; may be desirable in extra soft surfaces like snow, gravel, or mud (similar to Mud/Snow on Crimsons)

Pierce recommendation: When road conditions dictate that a driver change his/her driving pattern, the driver should disable auxiliary braking systems (Engine Brake).



Mirror, Wiper, and Buzzer Controls



Windshield wiper control

Warning Buzzer



Wipers are programmed to stop operating when parking brake is engaged; saves the wiper blades

Tiller wiper as well

Horn and Headlights



Emergency Master



Headlights/DOT Lights

Panel light dimmer



Electric/Air Horn in steering wheel hub

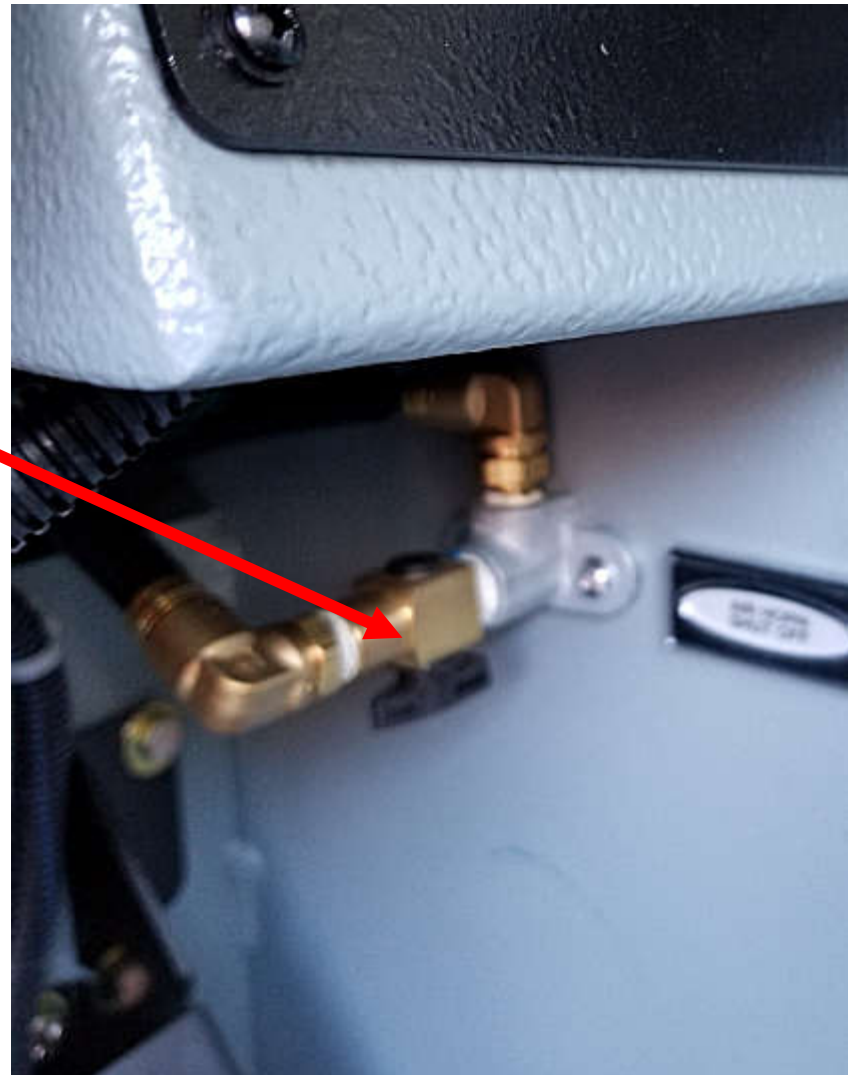
Shows when load sequencer is engaged; no operator intervention should be needed



Air Horn Manual Shutoff



The Air Horn Manual Shutoff is located to the right of the steering column in front of the driver's seat



Jackknife Warning



In addition to the warning light in the tiller cab, there are two warning lights for the driver

There is no warning light on the officer's side

The jackknife **alarm sound is different** from all other sounds in the cab



Jackknife alarm starts ~65deg

At ~83deg, you only have 6" of clearance

HASS Collision Mitigation



- HASS Device.
Use is TBD



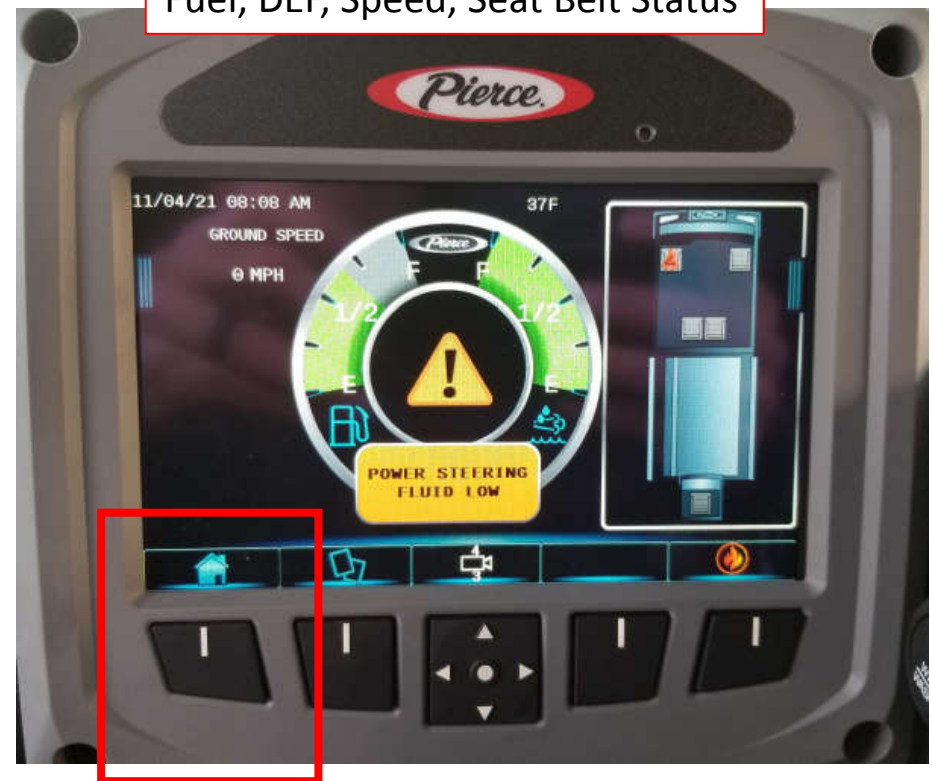
Command Zone Display



- Command Zone III system located on the dashboard to the right of the steering wheel
- Functions are a mix of hard buttons and touch screen
 - ✓ Vehicle systems monitoring
 - ✓ Vehicle systems controls
 - ✓ Vehicle diagnostics

Home Screen

Fuel, DEF, Speed, Seat Belt Status



Go to the Driver Training website for additional [Command Zone III](#) information.

Command Zone Menu

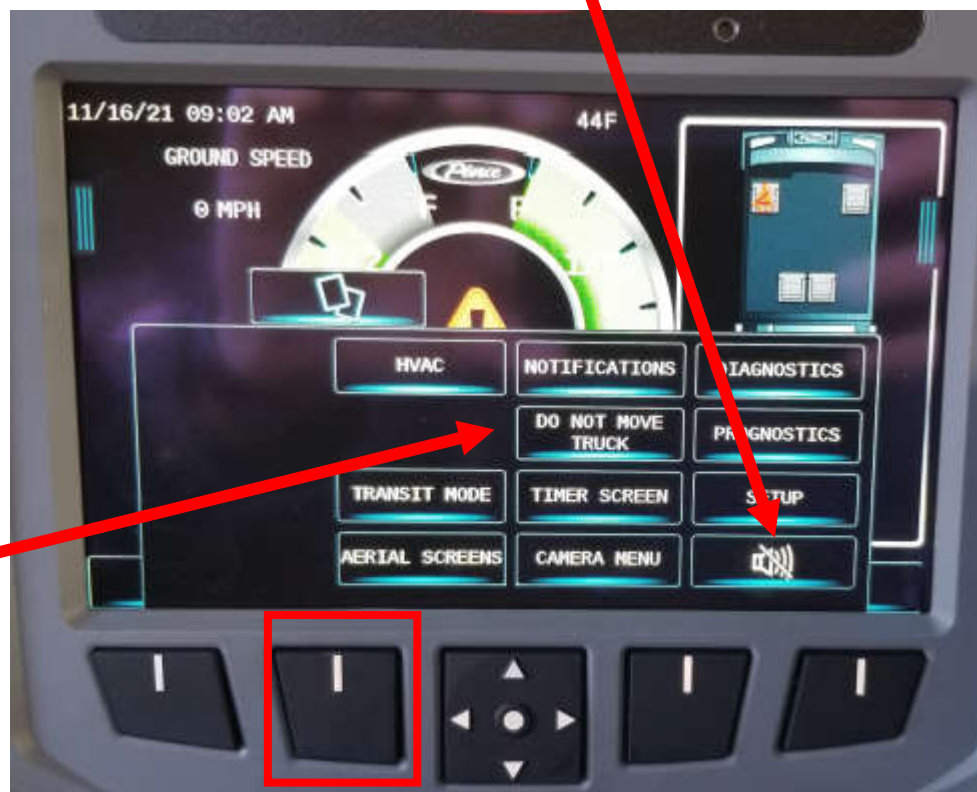


Menu Screen

Press the screen to access the following functions:

- HVAC
- Notifications
- Do Not Move Truck
- Camera Menu
- Aerial Screens

Click the mute button to reduce some alarms to an occasional chirp. This will not work for seatbelt alarms.



CZ Menu >> HVAC



Fan Control. The controller and system will include automatic temperature control. Simply push the fan control knob to activate the automatic temperature control.

Temperature Control. Operators set the temperature by rotating the dial. Pressing the center of the temperature control knob will activate the air conditioning (A/C) in manual mode.

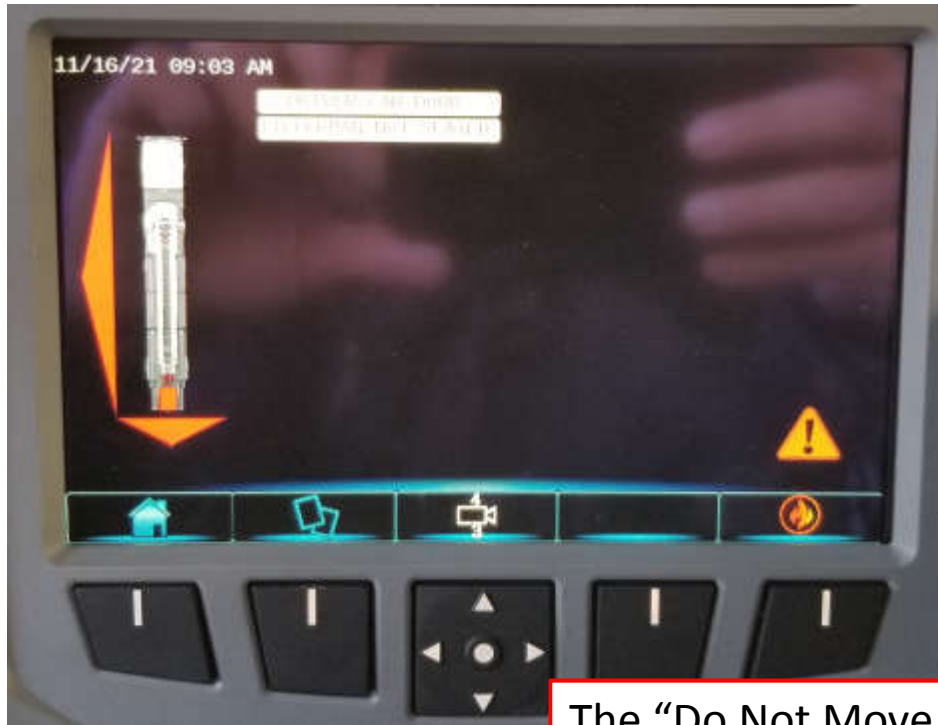
Air Flow Control. Pressing the air flow control knob will activate max defrost that will distribute airflow to the full forward position, set the fan speeds to 100-percent and engage the A/C.

CZ Menu >> Notifications



Scroll through the four notification screens for faults, caution messages, warnings, and general information

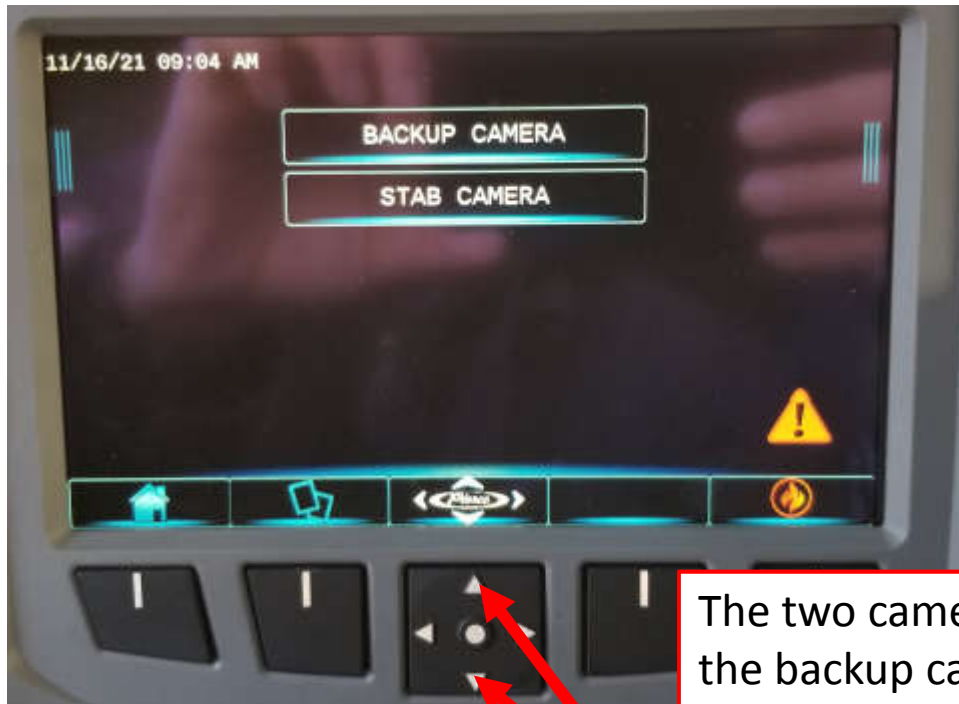
CZ Menu >> Do Not Move Truck



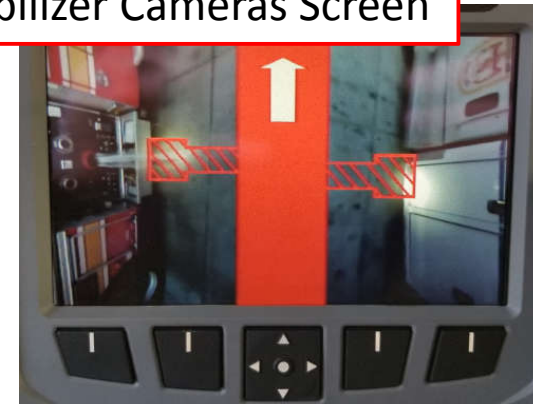
The "Do Not Move Truck" screen shows you faults such as the screen above:

Driver Cab Door Open
Tiller Driver Not Seated

CZ Menu >> Cameras



Stabilizer Cameras Screen



The two cameras available on these trucks are the backup camera and the stabilizer cameras

You can also access the backup camera by pressing down on the arrow pad and you can access the stabilizer cameras by pressing up on the arrow pad



Command Zone Fire Scene



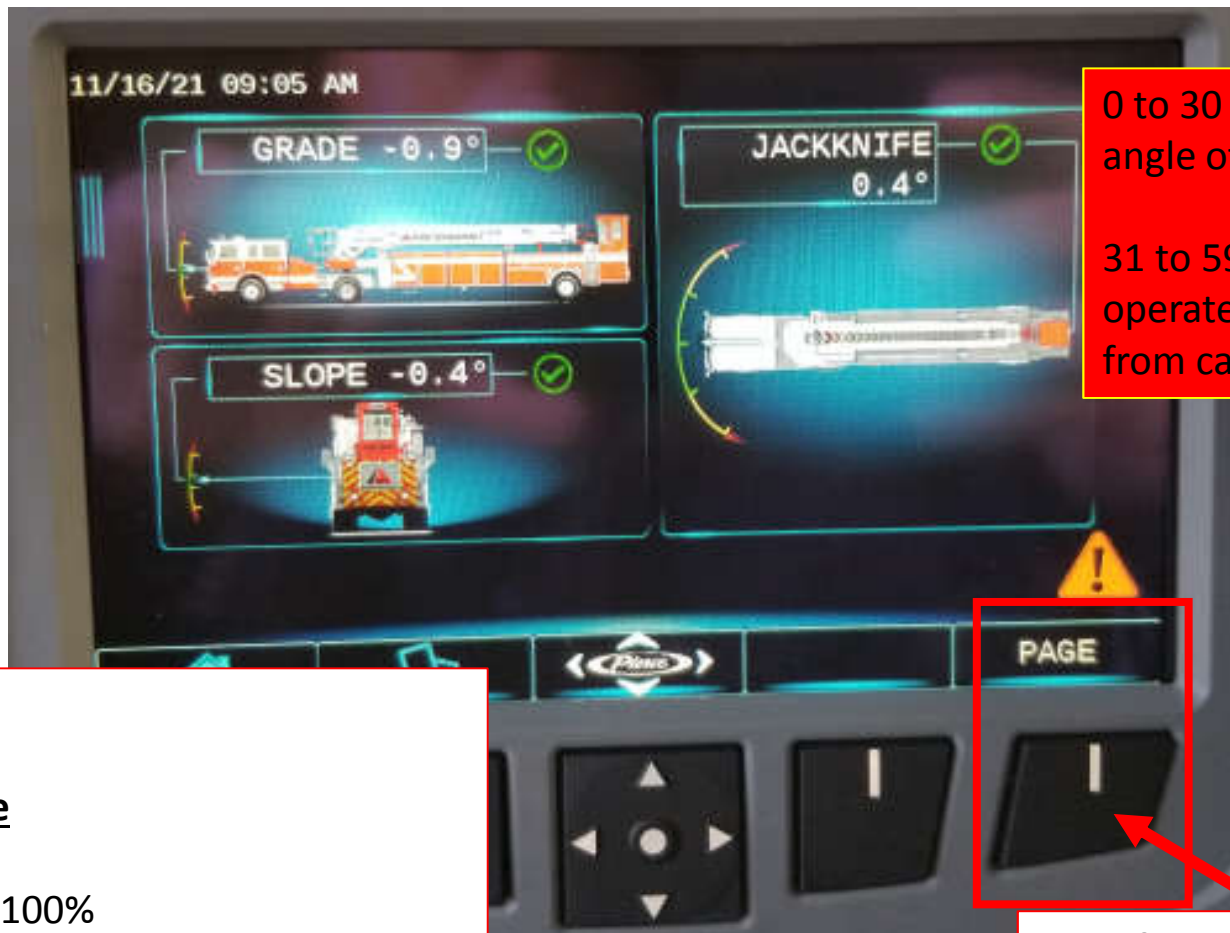
Fire Scene Screen

Press the page button to access the following functions:

Grade, Slope, and Jackknife
OK To Operate
Load Chart and Information



Command Zone Fire Scene



0 to 30 degrees full aerial
angle of operation

31 to 59.9 degrees can only
operate over side away
from cab 180 degrees

Grade
Slope
Jackknife

Green is 100%

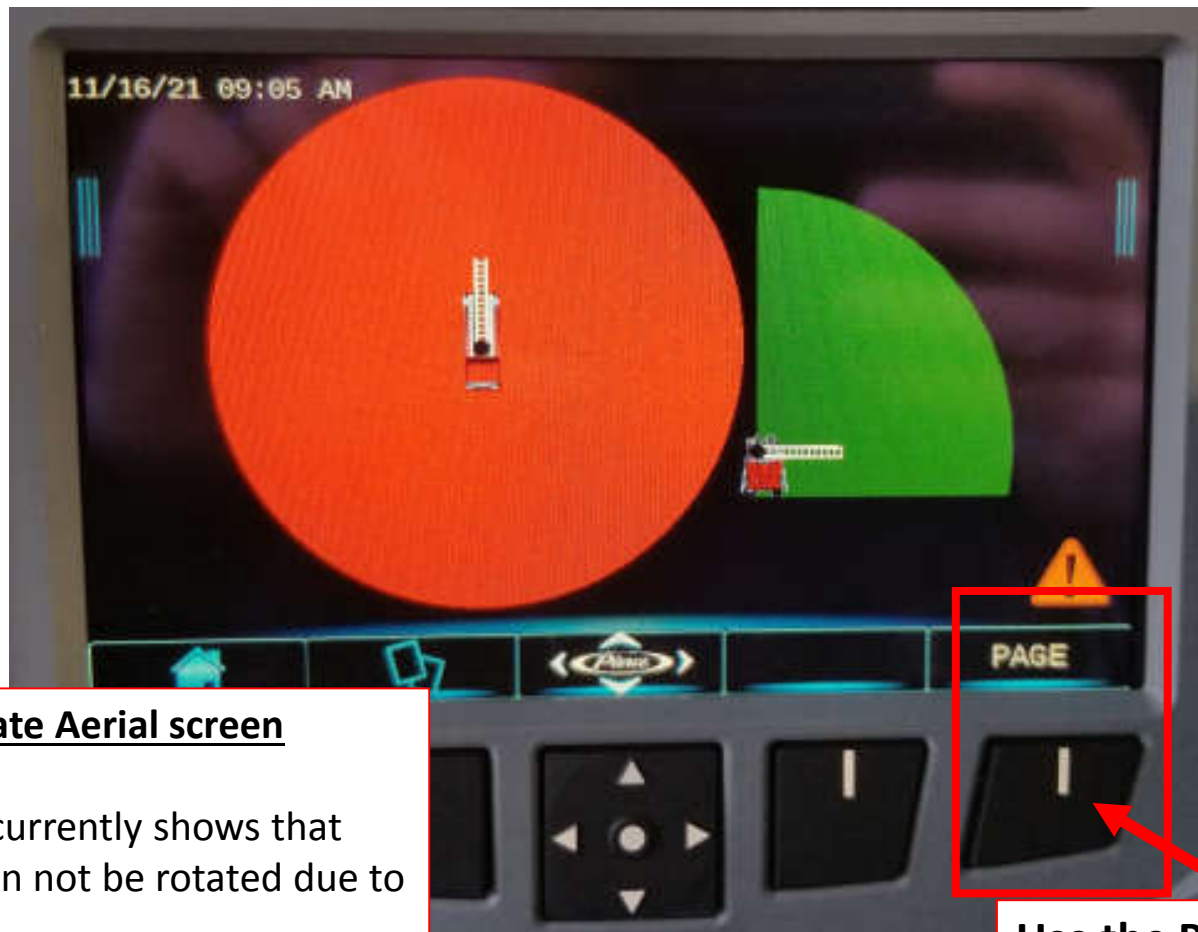
Yellow is 50%

Red is DO NOT OPERATE

Use the Page button to
scroll to the next screen



Command Zone Fire Scene



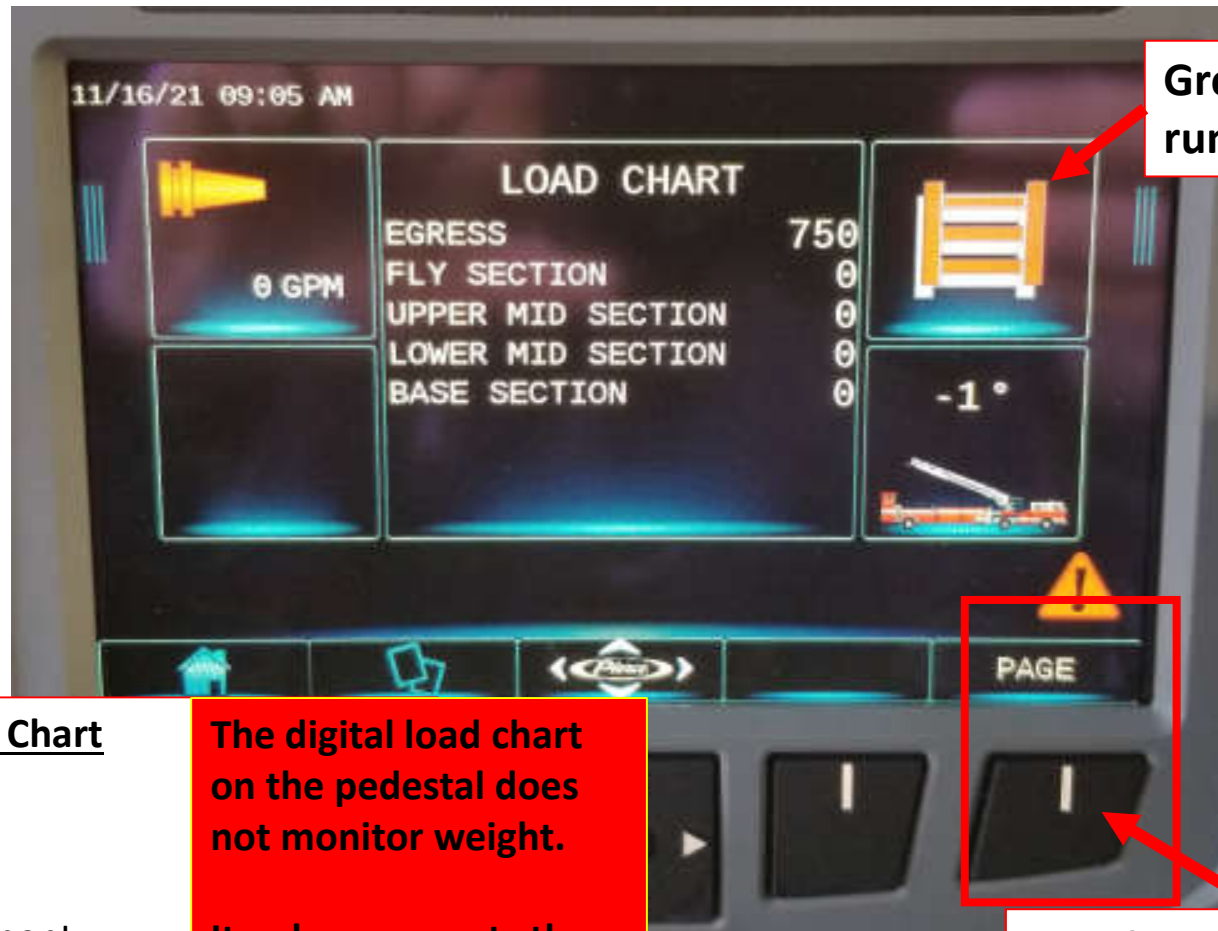
OK To Operate Aerial screen

The screen currently shows that the aerial can not be rotated due to some fault

Use the Page button to scroll to the next screen



Command Zone Fire Scene



Green if
rungs aligned

Aerial Load Chart

Flow Rate

Load Chart

Rung Alignment

Digital Inclinometer

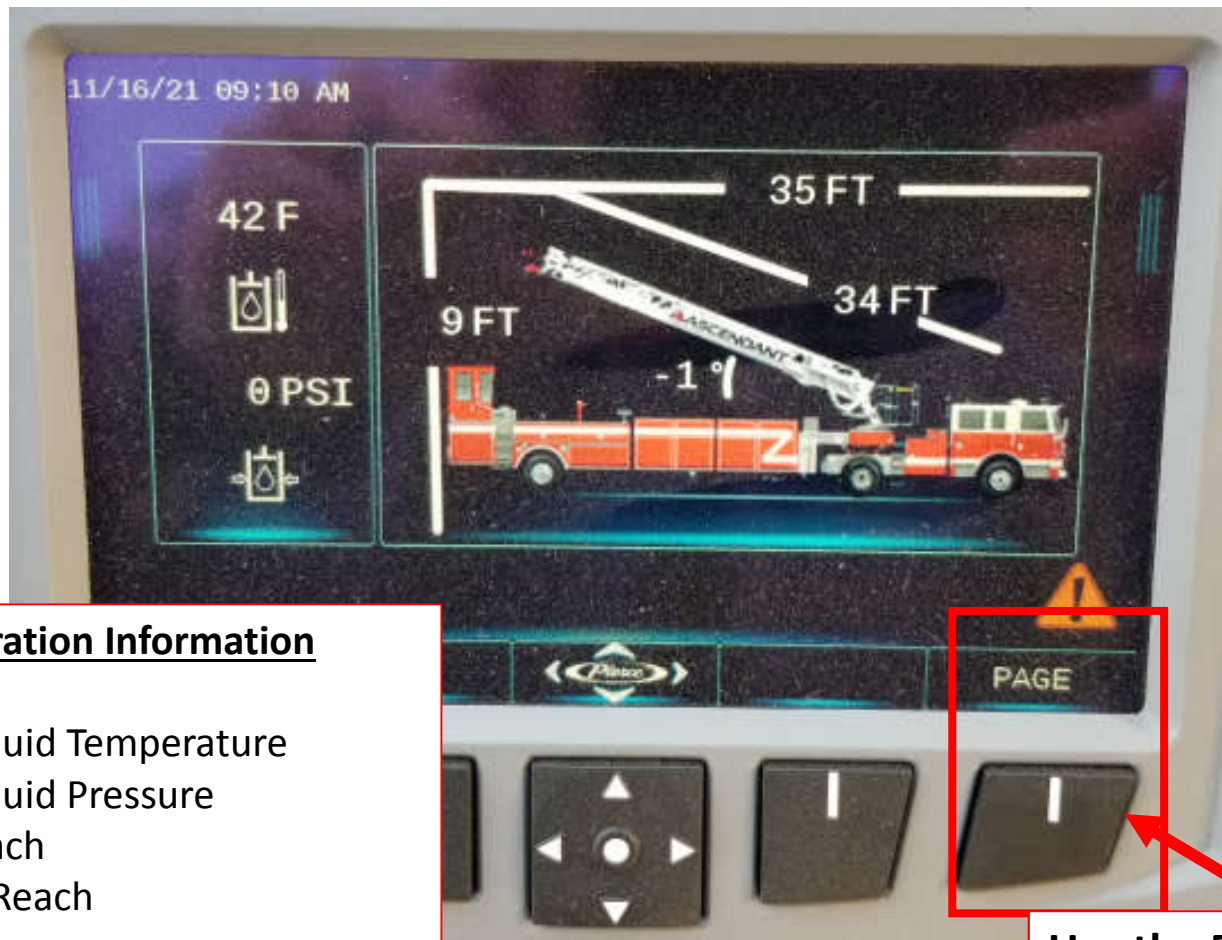
The digital load chart
on the pedestal does
not monitor weight.

It only represents the
chart.

Use the Page button to
scroll to the next screen



Command Zone Fire Scene



Aerial Operation Information

Hydraulic Fluid Temperature
Hydraulic Fluid Pressure
Vertical Reach
Horizontal Reach
Extension
Inclinometer

Use the Page button to
scroll to the next screen

Command Zone Pedestal



**Same Command Zone 3
Defaults to Aerial Screens**

SCBA Brackets – SmartDock



- No straps or levers to restrain the SCBA or to release the SCBA - blue latching mechanism holds the SCBA in place during transit.
- In the event of a collision, inertial forces cause the top latching mechanism to lock the SCBA in place, preventing it from becoming a projectile.
- **To release the SCBA, a smooth motion is required. Slow is smooth; smooth is fast.**
- With the SCBA straps donned, the wear should bend forward at the waist and stand up to release the tank from the upper claw.
- If the tank is too loose or too tight within the claw there is an adjustment knob on top of the bracket.



For additional information view a quick video at

<https://www.youtube.com/watch?v=y43vJK3bsVo&app=desktop> or check out the manufacturer's website at <https://www.imminet.com/products/fire-ems/smartdock/>

SCBA Strap Retainers



- Each SCBA-equipped seat has loops to stow SCBA straps
 - Enhances donning while seated
 - Secured by magnets (look like buttons)



Aerial Setup



1. Place transmission in neutral
2. Set parking break



3. Aerial Master

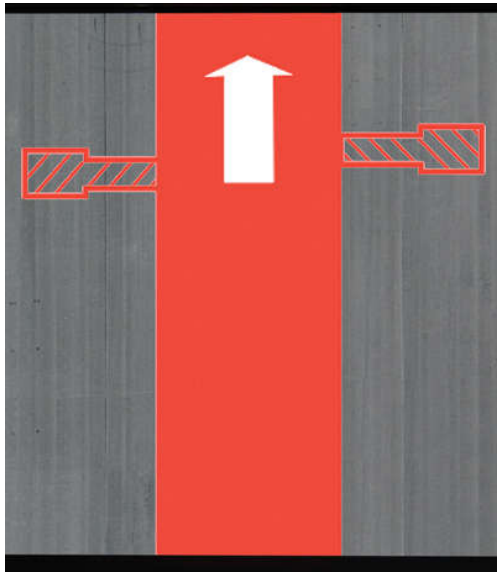
Single switch to set all wheel locks (front wheel lock) and activate aerial PTO for aerial operations

Wheel Chocks



Pierce MFG recommends
placing chocks down on
front wheels

Stabilizer



2 H-Style Stabilizers

No Pins

Pads do not conduct electricity and as such the truck is not grounded during operations

Keep aerial

> 20' from power lines

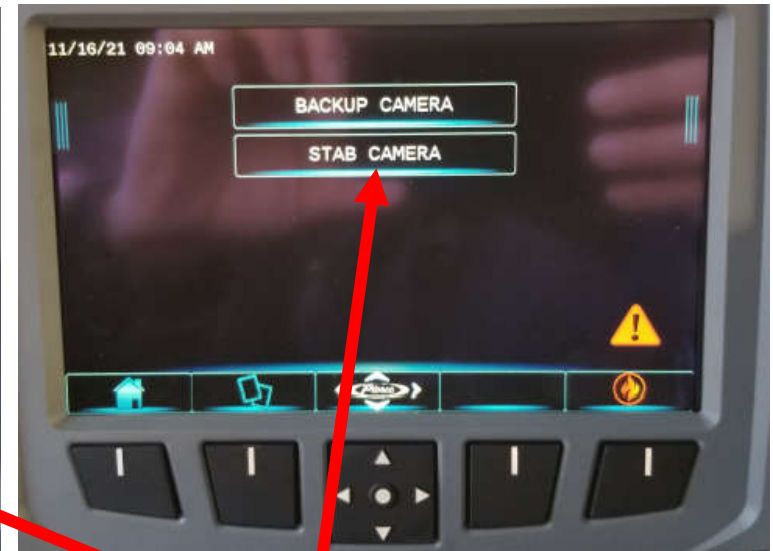
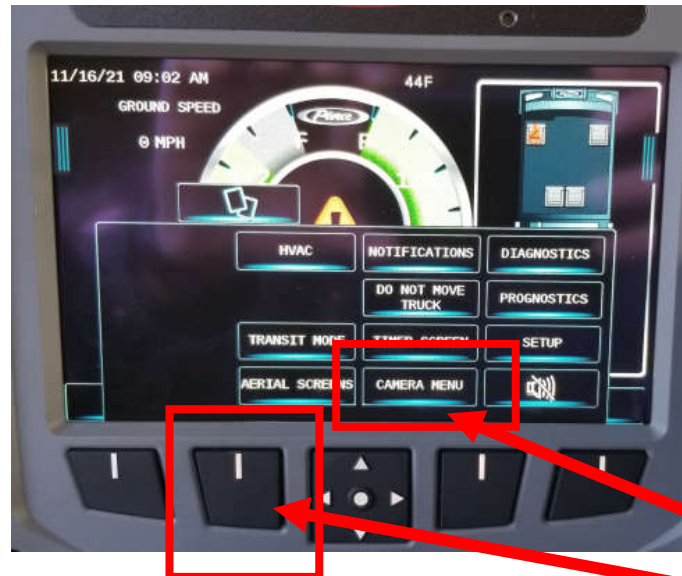
> 50' from power lines 350kV and higher

Pads for stabilizers

Officer's side stabilizer



Stabilizer Camera

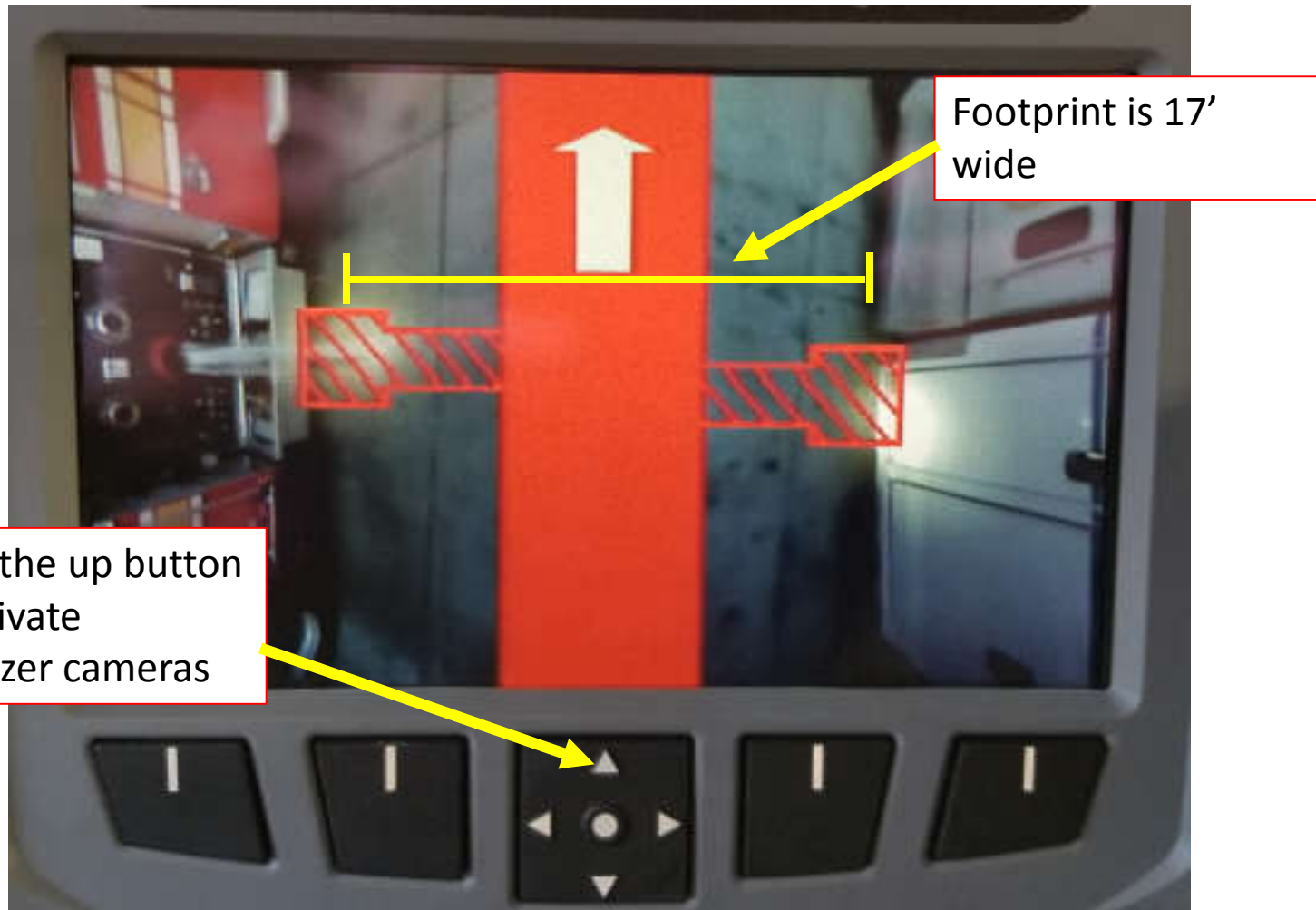


The Stabilizer camera can also be activated from the Command Zone III

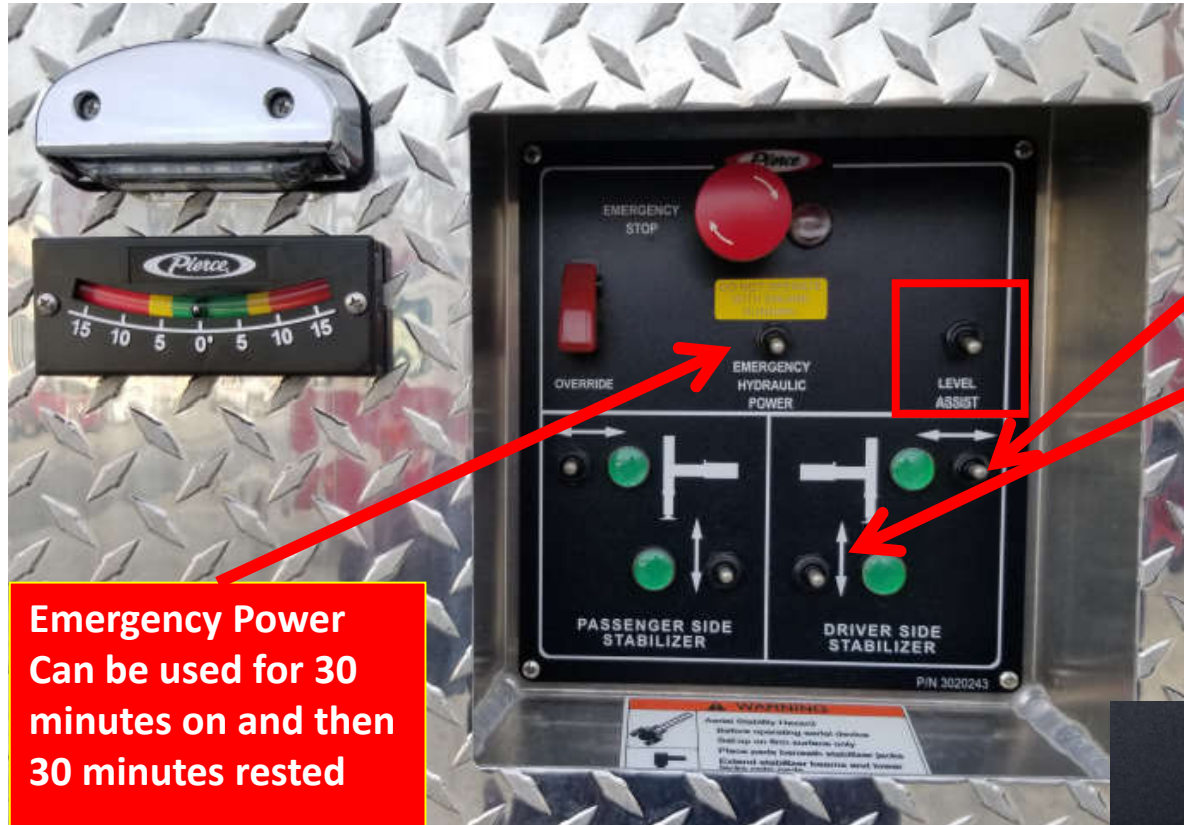


The Stabilizer camera can also be activated using the switch located above left from the driver's seat

Stabilizer Camera



Stabilizer Controls



Emergency Power
Can be used for 30
minutes on and then
30 minutes rested

**Only Use if Truck is
not running.**

1. Place pads down
2. Extend stabilizer beams fully
3. Lower stabilizer legs until the feet touch the pads (low side first – interlock at slope > 3.5deg)
4. Activate the Level Assist function and the computer will automatically level the truck

**There are no pins for
the stabilizer legs**

Level Indicators



- In the **green**
100%
- In the **yellow**
50%
- In the **red**
- DO NOT OPERATE



Use middle of BB



NOTE: Slope and grade angles
0 to 5% is in the green
5 to 8% is in the yellow

5th Wheel Lock

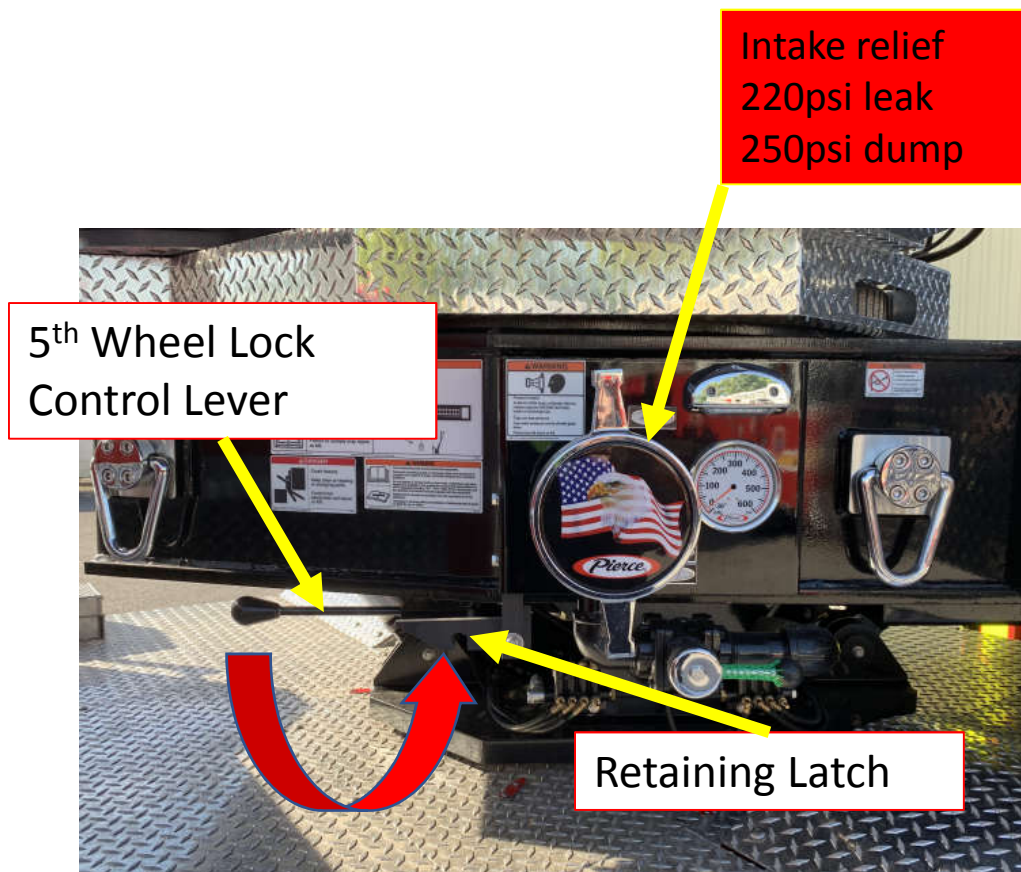


Passenger and driver side lock-out control levers are linked and can be moved to the LOCKED position from either side.

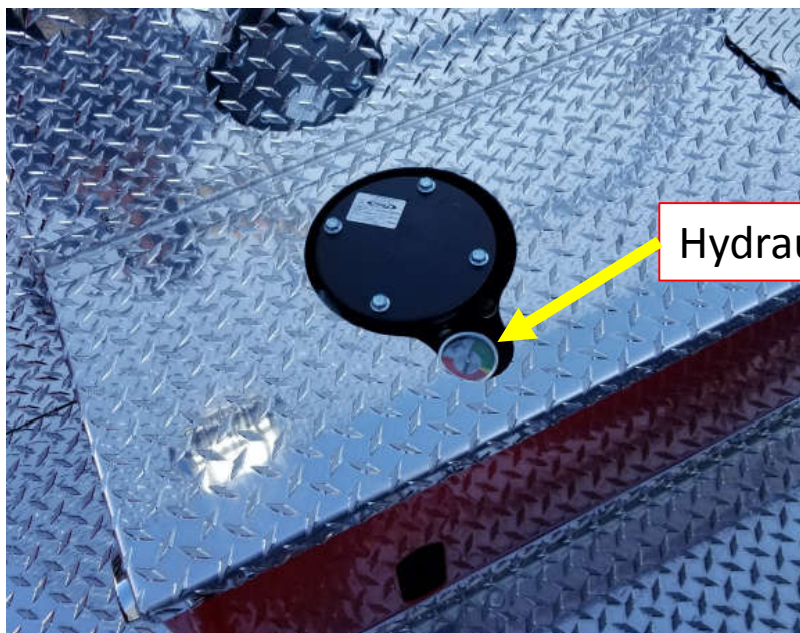
5th Wheel must be locked to operate aerial

Moving lever to the FREE position must be done from the driver side

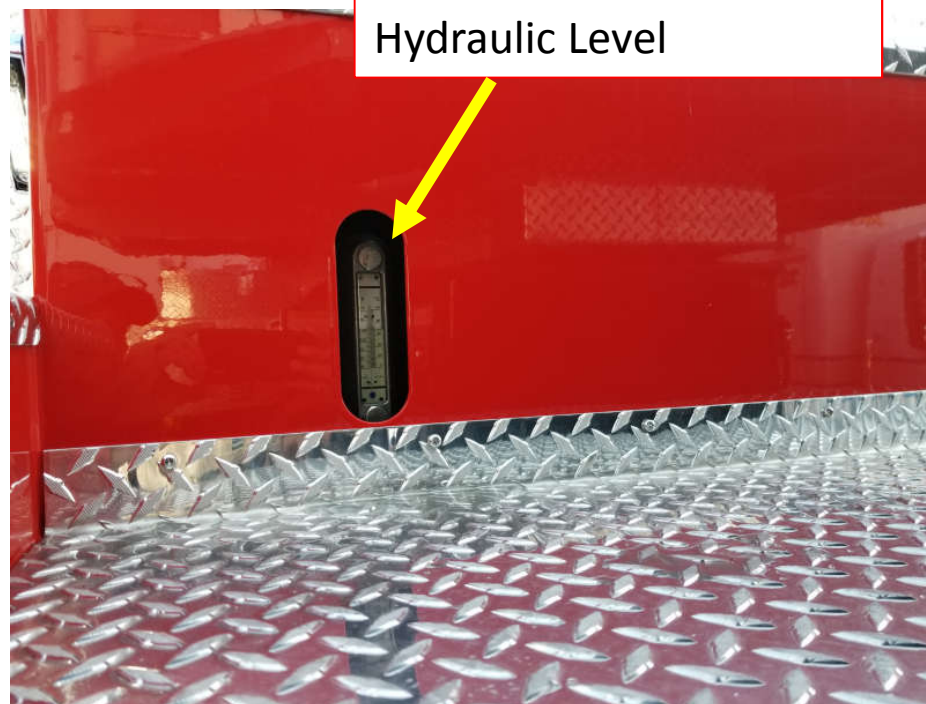
5th Wheel must be free to drive vehicle



Hydraulic Fluid



Hydraulic Pressure



Hydraulic Temperature

Hydraulic Level

Cold oil temperature is 44 deg

**Operate 1 function at a time
until oil is > 44 deg**

Pedestal Controls



revised 12/06/2021

2021 Pierce Ascendant TDA

Pedestal Controls



"Light Tower Raised" light will flash when the light tower is operating

NOTE: If the following criteria is met, the rotation will automatically bump up to "hyper fast"

- 1) Aerial is fully retracted
- 2) Aerial Speed switch is set to "Fast"



Pedestal Controls



Hold the Deploy/Stow switch for 4 seconds while the aerial is raised at least 7'



You can stop nozzle stow or deploy by hitting any control momentarily



"Dead Man" function
Lift collar under switch before moving lever (no foot switch)

Pedestal Controls



Maximum Function Slowdown will occur if you approach a hard stop point

Max/Min Elevation

Max/Min Extension

Interlock Rotation

Nozzle must be stowed before ladder can be lowered all the way into the cradle

Aerial must be all the way retracted before it can be lowered into the cradle

The aerial will automatically rotate to the neutral position and stow the nozzle for the cradle if you hold the lower lever

ALWAYS visually confirm the nozzle is stowed and the ladder is fully retracted before bedding the aerial

Don't blindly depend on the automatic stow functions/interlocks

Aerial Analog Inclinometer



-10 to 77 degrees
(level truck)

**NOTE: You can achieve
-15 degrees by using
the stabilizers to angle
the truck 5 degrees off
of level**

Aerial Capacities



ASCENDANT

WATERWAY DRY 50 MPH Wind Condition

| | Aerial Elevation | | | | | | | |
|-----------|------------------|------------|------------|------------|------------|------------|------------|------------|
| | -10' to 9' | 10' to 19' | 20' to 29' | 30' to 39' | 40' to 49' | 50' to 59' | 60' to 69' | 70' to 77' |
| Egress | 750# | 750# | 750# | 750# | 750# | 750# | 750# | 750# |
| Fly | - | - | - | - | - | 250# | 500# | 750# |
| Upper Mid | - | - | - | - | 250# | 500# | 1000# | 1000# |
| Lower Mid | - | - | - | - | 500# | 750# | 1000# | 1000# |
| Base | - | - | - | 500# | 500# | 1000# | 1000# | 1000# |

WATERWAY CHARGED 50 MPH Wind Condition

EGRESS CAPACITY IS ZERO WHEN FLOWING WATER WITH THE NOZZLE ABOVE WATERWAY CENTER LINE

| | Aerial Elevation | | | | | | | |
|-----------|------------------|------------|------------|------------|------------|------------|------------|------------|
| | -10' to 9' | 10' to 19' | 20' to 29' | 30' to 39' | 40' to 49' | 50' to 59' | 60' to 69' | 70' to 77' |
| Egress | 500# | 500# | 500# | 500# | 500# | 500# | 500# | 500# |
| Fly | - | - | - | - | - | 250# | 500# | 500# |
| Upper Mid | - | - | - | - | 250# | 500# | 750# | 1000# |
| Lower Mid | - | - | - | 250# | 500# | 750# | 1000# | 1000# |
| Base | - | - | 250# | 500# | 750# | 1000# | 1000# | 1000# |

Reduced Loads at the tip can be redistributed in 250# increments to the fly section, upper mid section, lower mid section or base section as needed.

MONITOR NOZZLE POSITIONS

0 to 1000 GPM
Flow Rate
Up to 35 MPH
Wind

1001 to 1500 GPM
Flow Rate
Up to 35 MPH
Wind

0 to 1500 GPM
Flow Rate
35 to 50 MPH
Wind

Capacities are based on the following conditions:

- * Apparatus is set up according to the operator's manual and leveled to within safe operating limits.
- * The ladder is fully extended and unsupported, 360° continuous rotation.
- * For icing conditions, refer to the operator's manual.

Rated vertical height: 107 feet

Rated horizontal reach at: 0° = 100 feet - 0 inches

45° = 70 feet - 6 inches

77° = 22 feet - 6 inches

ascendant 107-1-0

Waterway Dry up to 50mph winds

Waterway Charged up to 50mph winds

GPM Flow up to 35mph winds

GPM Flow up to 50mph winds

Aerial Capacities



| WATERWAY DRY 50 MPH Wind Condition | | | | | | | | |
|------------------------------------|------------------|------------|------------|------------|------------|------------|------------|------------|
| | Aerial Elevation | | | | | | | |
| | -10° to 9° | 10° to 19° | 20° to 29° | 30° to 39° | 40° to 49° | 50° to 59° | 60° to 69° | 70° to 77° |
| Egress | 750# | 750# | 750# | 750# | 750# | 750# | 750# | 750# |
| Fly | — | — | — | — | — | 250# | 500# | 750# |
| Upper Mid | — | — | — | — | 250# | 500# | 1000# | 1000# |
| Lower Mid | — | — | — | — | 500# | 750# | 1000# | 1000# |
| Base | — | — | — | 500# | 500# | 1000# | 1000# | 1000# |

In this example, the Aerial inclinometer is reading between 40 and 49

- You can put 750lbs on the red egress “tip”
- You can not have any weight on the fly section
- You can have 250lbs on the upper mid section
- You can have 500lbs on the lower mid section
- You can have 500lbs on the base section

Reduced Loads at the tip can be redistributed in 250# increments to the fly section, upper mid section, lower mid section or base section as needed.

Aerial Capacities



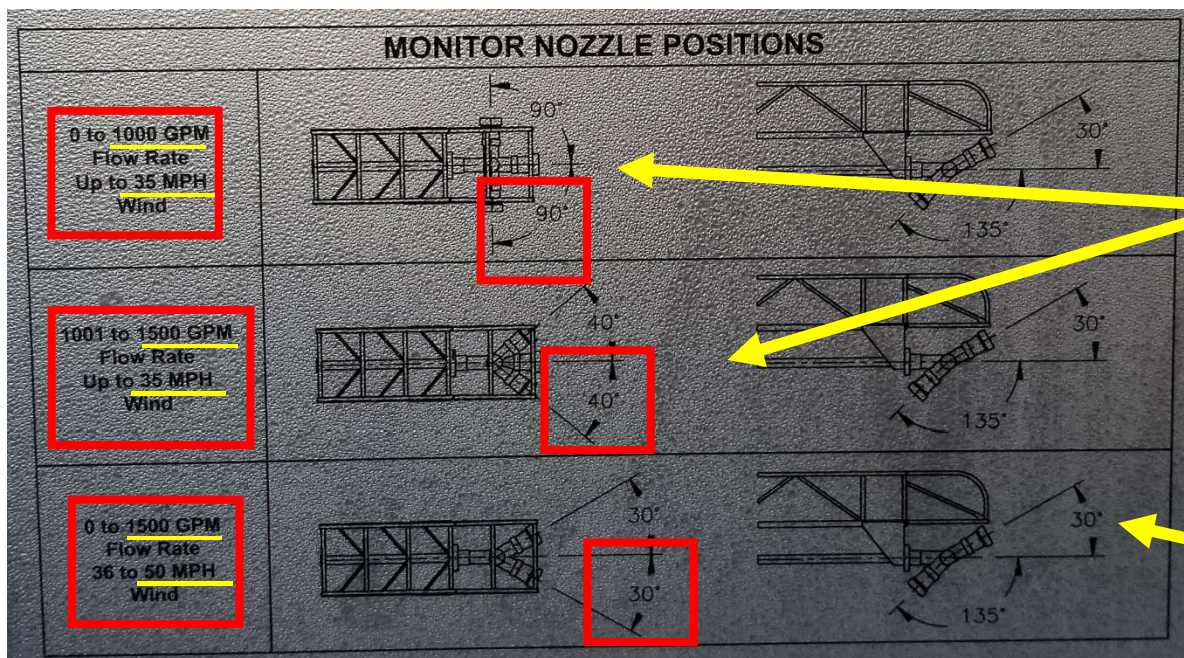
| WATERWAY CHARGED 50 MPH Wind Condition | | | | | | | | |
|---|------------------|------------|------------|------------|------------|------------|------------|------------|
| EGRESS CAPACITY IS ZERO WHEN FLOWING WATER WITH THE NOZZLE ABOVE WATERWAY CENTER LINE | | | | | | | | |
| | Aerial Elevation | | | | | | | |
| | -10° to 9° | 10° to 19° | 20° to 29° | 30° to 39° | 40° to 49° | 50° to 59° | 60° to 69° | 70° to 77° |
| Egress | 500# | 500# | 500# | 500# | 500# | 500# | 500# | 500# |
| Fly | — | — | — | — | — | 250# | 500# | 500# |
| Upper Mid | — | — | — | — | 250# | 500# | 750# | 1000# |
| Lower Mid | — | — | — | 250# | 500# | 750# | 1000# | 1000# |
| Base | — | — | 250# | 500# | 750# | 1000# | 1000# | 1000# |

In this example, the Aerial inclinometer is reading between 20 and 29 and the nozzle is aimed below center line of ladder

- You can put 500lbs on the red egress “tip”
- You can not have any weight on the fly section
- You can not have any weight on the upper mid section
- You can not have any weight on the lower mid section
- You can have 250lbs on the base section

Reduced Loads at the tip can be redistributed in 250# increments to the fly section, upper mid section, lower mid section or base section as needed.

Aerial Capacities



When nozzle is aimed more than 40 degrees laterally, flow must be reduced

When winds are greater than 35mph, the nozzle must be aimed less than 30 degrees laterally

Capacities are based on the following conditions:

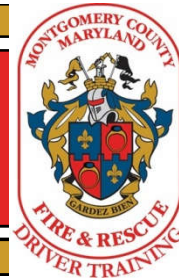
- * Apparatus is set up according to the operator's manual and leveled to within safe operating limits.
- * The ladder is fully extended and unsupported, 360° continuous rotation.
- * For icing conditions, refer to the operator's manual.

Rated vertical height: 107 feet

Rated horizontal reach at:

| | |
|-------|---------------------|
| 0° = | 100 feet – 0 inches |
| 45° = | 70 feet – 6 inches |
| 77° = | 22 feet – 6 inches |

Aerial PA System



Press Talk switch down to activate speakers at tip of aerial

Talk switch in the up position will allow you to listen to sounds near the tip of the ladder passively

On/Off/Volume dial

Waterway



The telescopic water system will consist of
4.5" diameter tube in the base section
4.0" diameter tube in the inner mid-section
3.5" diameter tube in the outer mid-section
3.0" diameter tube in the fly section.

Intake relief
220psi leak
250psi dump



9000 lbs anchor points

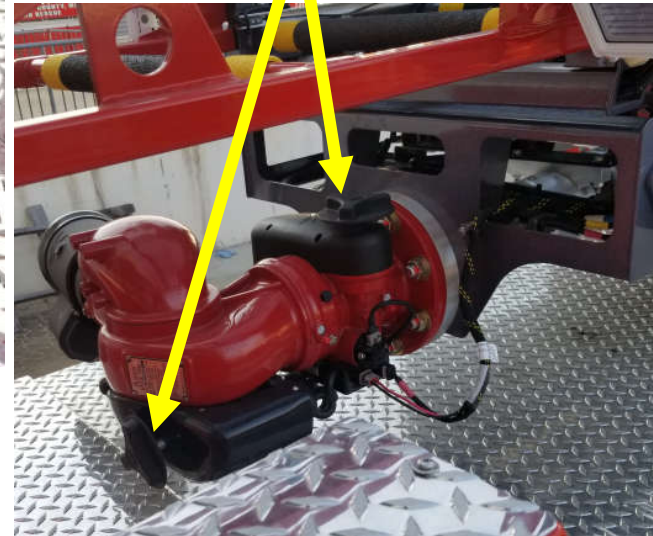
There are also 9000 lbs anchor points on front and rear of truck

Nozzle



1250 GPM Nozzle
Adjustable fog -- straight

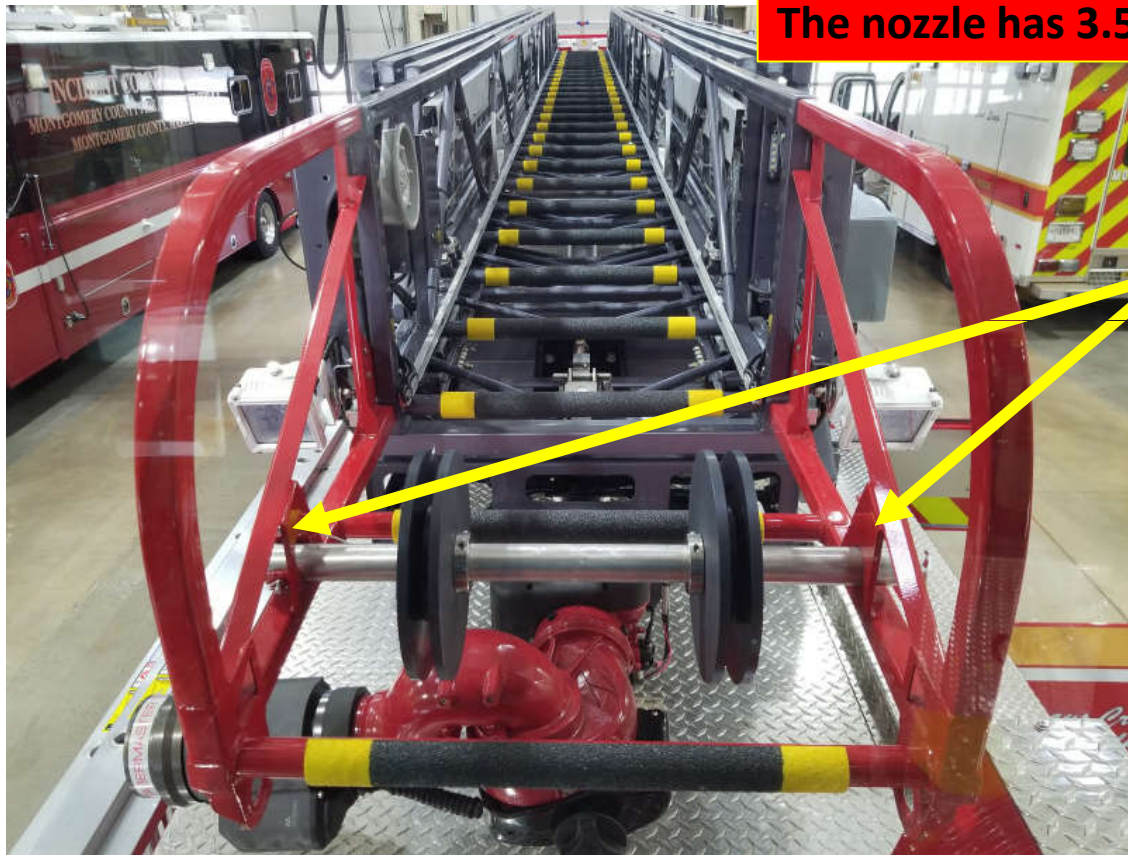
Manual Nozzle Controls



Nozzle



**NOTE: There is no flying standpipe.
The nozzle has 3.5" threads.**



Integrated bracket for
"Pierce Rescue Pulley"

Nozzle

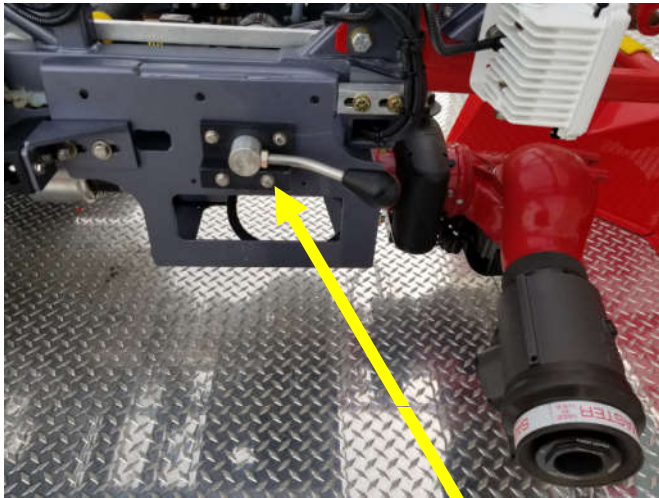


2" Solid Bore mode
80psi, 1065gpm, 275' reach

2" Fog mode
80psi, 1250gpm



Nozzle



Waterway pin lever

NEVER leave the waterway lever unpinned. It must be locked in one position or the other

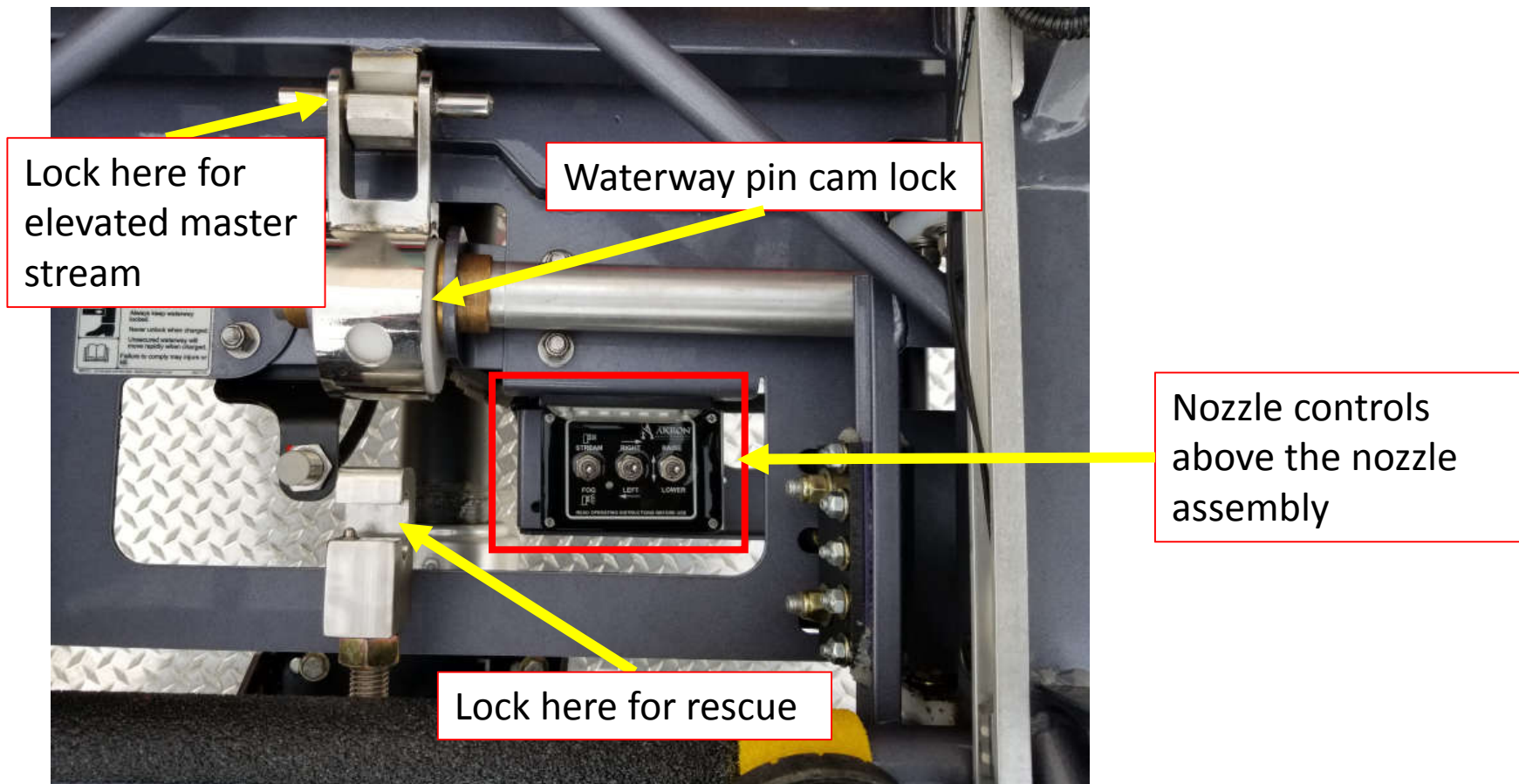
Left is pinned to rescue. Nozzle stays with upper mid section

Right is pinned to elevated master stream. Nozzle stays with fly section.

Note: The nozzle can be aimed higher than the aerial in this configuration (e.g. storefront operations)

Lever can only be manipulated when aerial is fully retracted.

Nozzle



Emergency Stop



There are 3 Emergency Stop Buttons

Turntable Pedestal and both Stabilizer Control panels

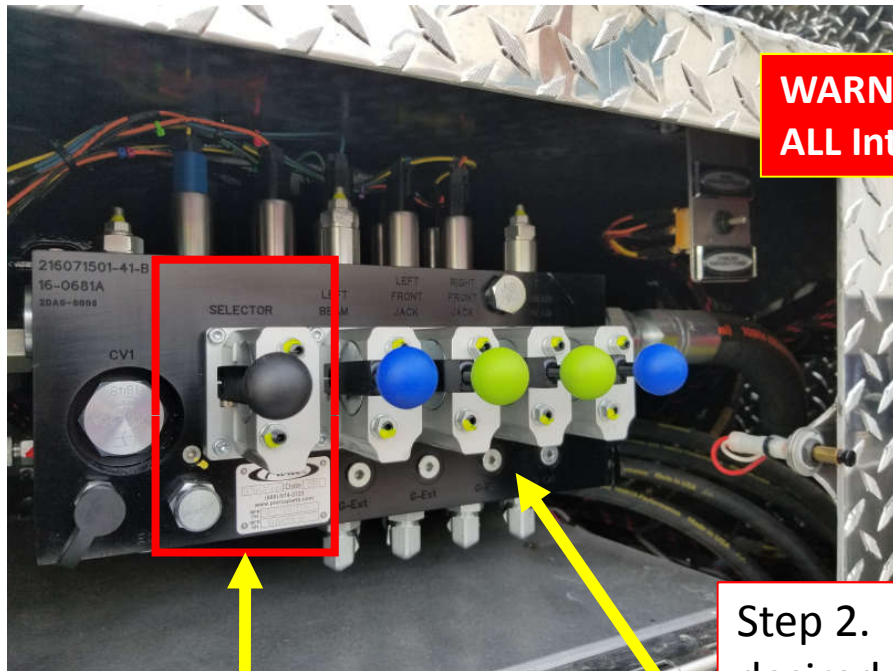


It is recommended to hit the kill switch if anyone is going to be on the ladder.



- Push to activate
- Turn clockwise to deactivate
- Can be used as a safety mechanism

Manual Hydraulics



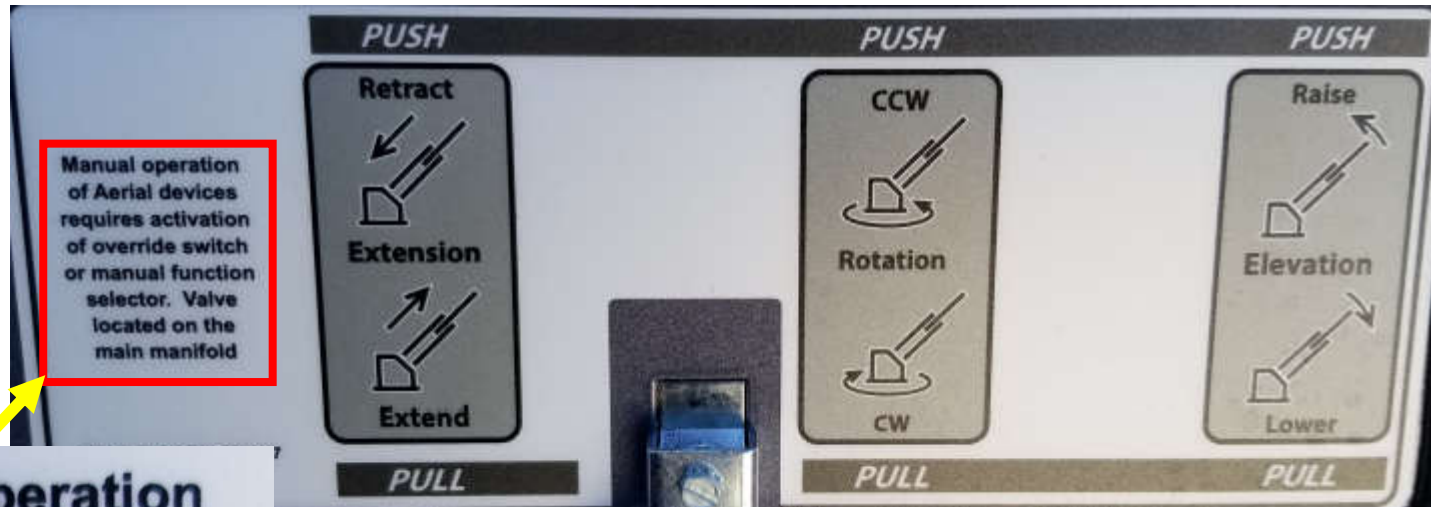
Step 1. Use the selector to choose stabilizers or aerial

WARNING:
ALL Interlocks Are Ignored

Step 2. Operate desired manual control for stabilizers or aerial



Manual Hydraulics



Manual operation of Aerial devices requires activation of **override switch** or **manual function selector**. Valve located on the main manifold

Override switches are found on stabilizer control panels

Manual Function Selector is the left lever on the main manifold (see previous page)

Overrides



There are 2
override switches.

One on each
stabilizer control
panel

Interlocks



- Stabilizers not set
- 5th wheel not locked
- Jackknifed greater than 60 degrees
- Truck lateral tilt in the red
- Truck longitudinal tilt in the red
- Nozzle not stowed while bedding aerial
- Aerial collision detected
- Hydraulic oil will alarm at 180deg

Interlocks



- Jackknifed between 30 and 60 degrees
Aerial can operate 270 degrees outside of the “V” of the truck
- Shortjacked
Aerial can operate 180 degrees opposite the shortjacked side

Emergency Hydraulics



There are 3 Emergency Hydraulic switches.

One on each stabilizer control panel and the pedestal

WARNING:

**Only use if truck is
NOT RUNNING**

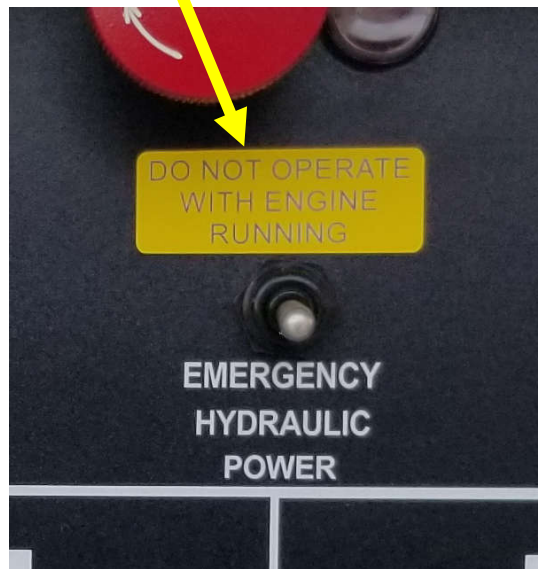


Emergency Hydraulics



If you do not have hydraulic power...

Use this



You should be able to use your regular controls while using emergency hydraulics

Emergency Power



If you do not have electric power...

Use this and/or these



You can use the EPU for 30 minutes on and then rest for 30 minutes

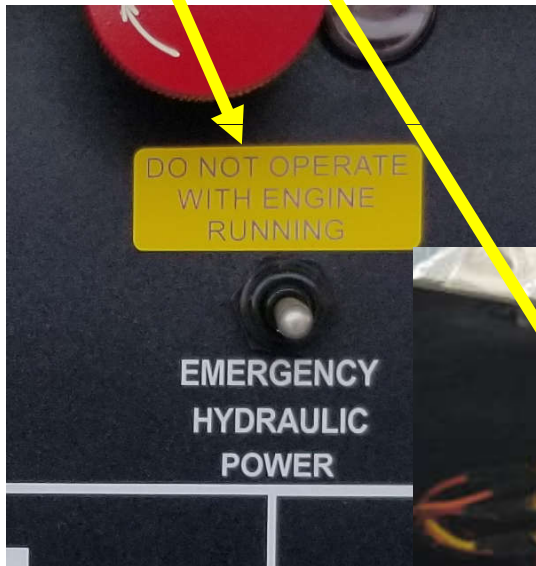


Emergency Hydraulics & Power



If you do not have hydraulic power...
And you do not have electric power...

Use this and this and/or these



Emergency Hydraulics & Power



Exercise EPU weekly

Only use emergency hydraulics and power to get yourself out of trouble... not into trouble

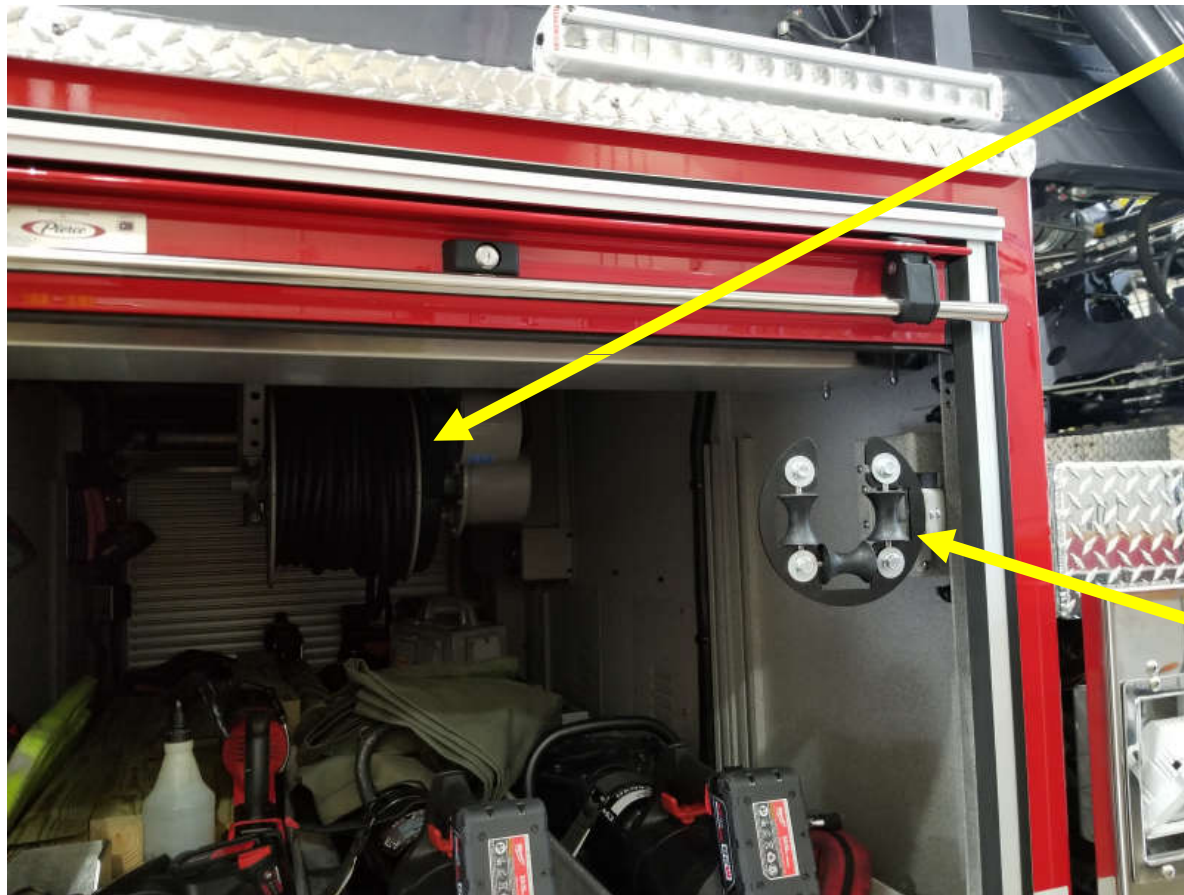
Pedestal overrides require 2 people. One at pedestal and one holding the override switch on the stabilizer panel(s)

Generator



10Kw Generator
Panel is located in first compartment on trailer on driver's side

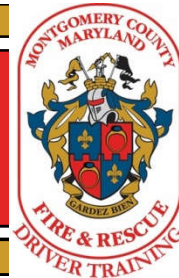
Cord Reel



200 feet of black 10/4 electrical cord

Wire guide on officer's side

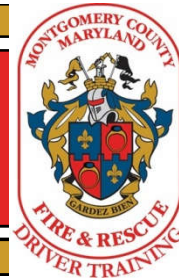
Light Tower



Light tower control is located in first compartment on trailer on driver's side

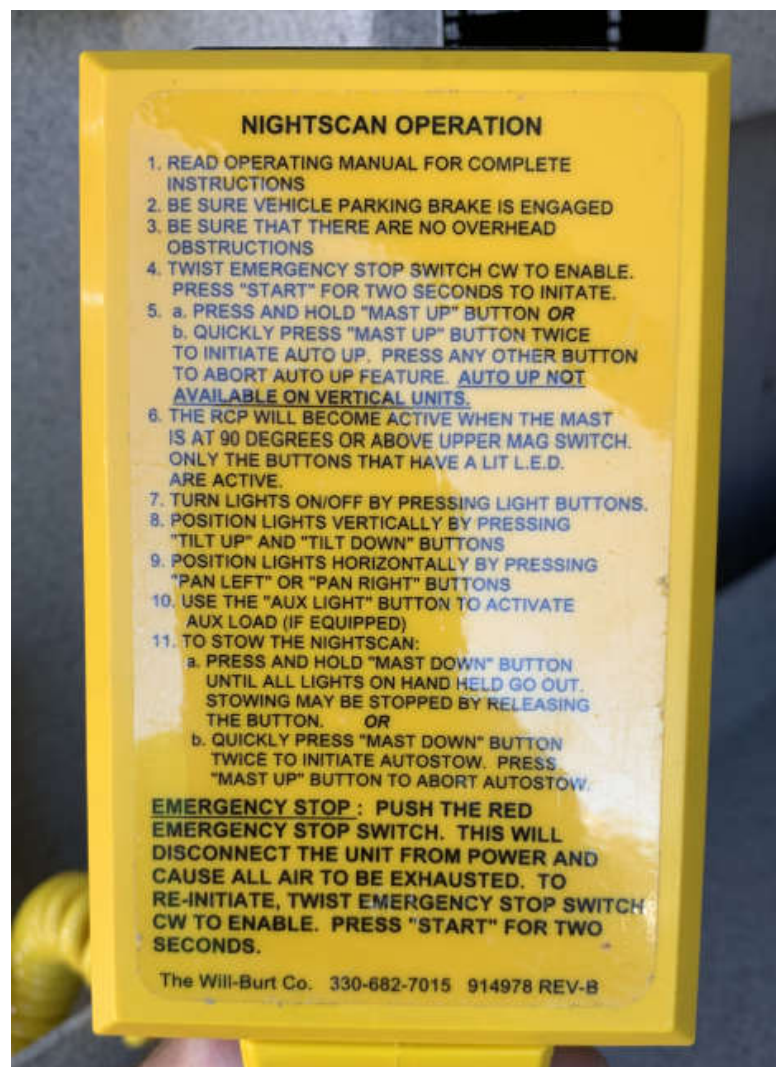


Light Tower



WARNING:

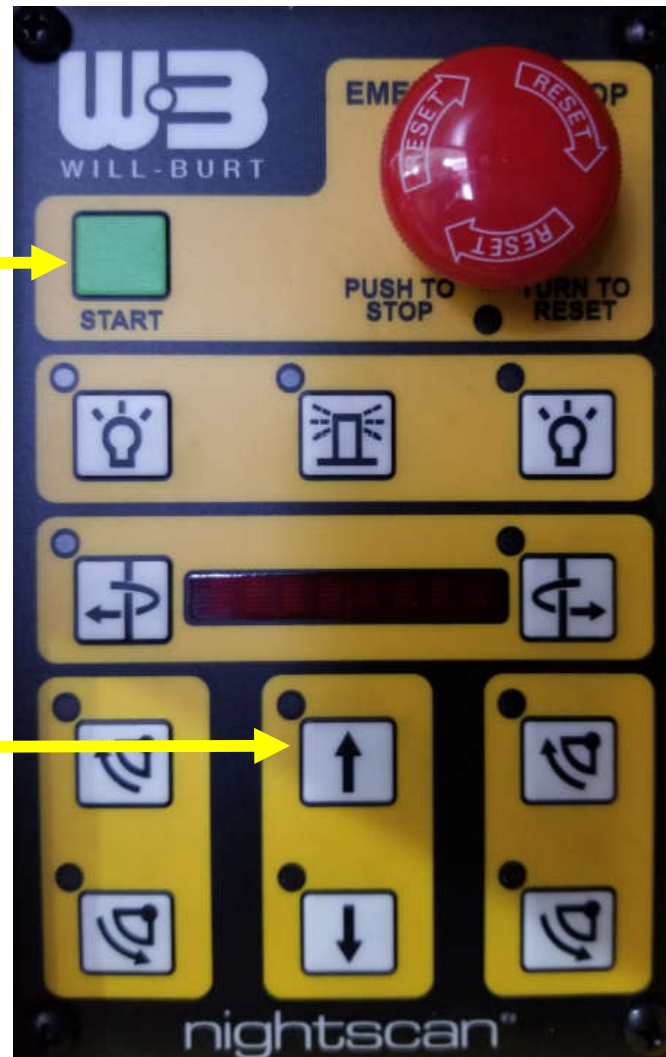
Aerial collision prevention programming DOES NOT INCLUDE the light tower



Light Tower



Press and hold START to wake up controls



Press and hold UP arrow to articulate boom to upright position and continue to hold to raise mast

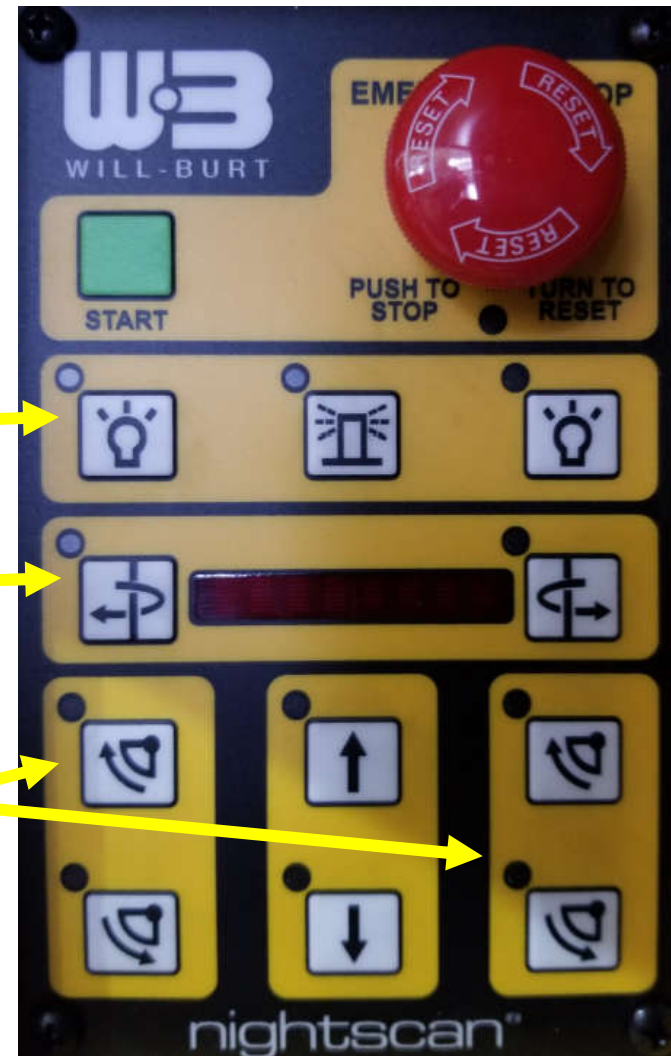
Light Tower



Left and right light on/off switches

Light mast can rotate 360 degrees clockwise or counterclockwise

Left and right lights on mast can be articulated up or down independently



Light Tower

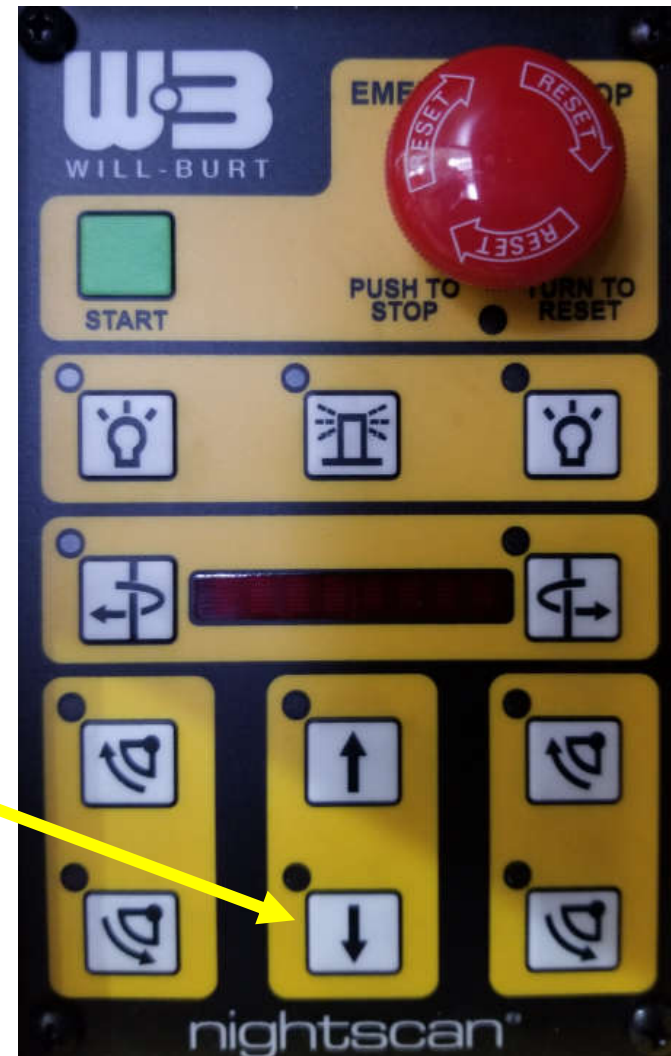


To stow light tower

Press and hold DOWN button until all lights on control turn off

OR

Quickly press the DOWN button twice to activate "auto stow" mode. You can stop the auto stow by pressing the UP button.



Light Tower



Generator PTO must be engaged in order for lights to illuminate



Low Aerial Angle Off Of Front



There are two options available if it is necessary to operate the aerial at a low angle in front of the truck:

The tractor can be angled up to 30 degrees left or right (or up to 60 degrees away from structure)

Or

The outriggers can be extended to raise the turntable



TDA Committee



TDA Committee

- Chief Brendan Bonita
- A/C Alan Butsch
- Crew Chief Danny Dean
- A/C Pete Friedman
- Mr. Steve Lamphier
- MF Jim Lanham
- B/C Kelvin Thomas
- Crew Chief Steve Wolff